LABOR MARKET STRUCTURE AND THE OCCUPATIONAL ATTAINMENT OF MATURE WOMEN: EVIDENCE FROM THE NATIONAL LONGITUDINAL SURVEYS

BY

CHIU CHU-MING, CATHERINE

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ABSTRACT

Based on the data from the National Longitudinal Surveys on mature women aged 30-44 as of 1967, this paper studies the process of occupatioanl achievement of women from labor market entry to mid-career. Labor market structure as represented by the industrial sectoral location of jobs is brought to bear directly in the formulation of the models for the occupational mobility of women. The models predict the occupational status gains of nonwhite women better than those of white women. Nevertheless, extensive experience with the core industrial sector favors white women's occupational attainment, net of other factors. Other resources such as educational attainment, extent of labor force participation and socioeconomic background also contributes to these women's occupational achievement. The return on resources is found to be greater for white women than for nonwhite women. And more generally, white women, on the average, do not achieve much upward mobility occupationally. Nonwhite women, though they do experience some upward mobility, have been remaining in a much lower level wihtin the occupational hierarchy than white women.

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CHAPTER ONE

APPROACHES TO WOMEN'S OCCUPATIONAL ATTAINMENT

In industrialized societies, occupations are most ubiquitous of all social and sociological factors used in the measurement of social class, political motivations, leisure time orientations, and other work and non-work related characteristics (Montagna, 1977). Few sociologists would deny the centrality of occupational roles within the structure of industrialzed societies, or the linkage of individuals to the society through such roles (Featherman et al., 1975; Horan, 1978). Blau and Duncan (1967) conceptualize occupational order as the backbone of the class structure and of the reward system of modern western society:

> "Men's careers occupy a dominant place in their lives today, and the occupational structure is the foundation of the stratification system of contemporary industrial society. In the absence of hereditary castes or feudal estates, class difference comes to rest primarily on occupational positions and the economic advantages and powers associated with them. A knowledge of the occupations and of the conditions that govern men's chances of achieving economic success by moving up the occupational hierarchy is, therefore, essential for understanding modern society, and particularly, its stratified character." (Blau and Duncan, 1967:vii-viii)

Their occupational attainment model has led to a rapid growth in the number of studies of mobility processes in the United

States. Researchers follow the footsteps of their classic study, The American Occupational Structure (1967). In addition to just analyzing the samples of males, they have increasingly focused on women as well (Sewell et al., 1980; Featherman and Hauser, 1976; Treiman and Terrell, 1975; Tyree and Treas , 1974).

The major concern of these researchers has been to measure intergenerational mobility of women. The occupations of the women's fathers are taken as the origin point. They choose two alternatives for the destination status. One is the women's own occupation to get a measure of social mobility via occupational achievement. The alternative destination status selected is the socioeconomic status of the women's husbands, the goal is to study marital mobility (Oppenheimer, 1982).

Another concern of theirs is to analyze trends in inequality in occupational attainment by gender. Comparing the intragenerational mobility of women to that of men, it is evident that there is a collective failure on the part of women to achieve the occupational success of their male counterparts. But this sort of research essentially treats men and women as "equal" and does not take into account the differences by sex in general life situations (Rosenfeld, 1976). Hence, it is limited in the insight it can provide regarding the relative position of women and men in the occupational structure.

Looking at women's life situation, it is obvious that the role of women as workers in the home is significant. It affects the continuity in their employment experience. Often the pattern of their work histories has been a period of employment before marriage and/or the birth of the first child, a period of full time work within the home, and later return to relatively continuous employment. This discontinuity and shorter duration in employment affect the rewards women receive within the occupational structure. According to the human capital theory, the longer and the more continuously a person is employed, the farther he will advance occupationally. In addition to taking into account the individual factors, arguments concerning workers in different labor market sectors suggest that structural factors also play an important part in determining women's occupational advancement.

This study is an attempt to relate both the individual and structural factors to the ways women move between levels within the occupational structure in different stages of their career. The reasons for predicting that these two dimensions affect women's occupational mobility are developed in chapter two. What follows here is a review of the two major theoretical perspectives -- human capital thoery and labor segmentation perspective -- developed in the field of occupational mobility study.

HUMAN CAPITAL THEORY

Human capital theory is developed from neoclassical economic theory which has two basic assumptions, namely, that traditional price theory is applicable to the analysis of labor markets and that labor markets are composed of atomistic individuals behaving in a reward maximizing way (Gordon, 1972; Cain, 1976; Beck et al., 1978, 1980a; Kreckel, 1980). The human capital approach[1] remains with the neoclassical tradition in so far as it holds on to the "classical" assumptions of price theory and of maximizing behavior. On the other hand, it abandons the unrealistic assumptions of total homogeneity and flexibility of human labor power. It is replaced by the idea of the productivity, and hence the market value, of the worker. That is, inequality of life-earnings and occupational status are expalined as being a consequence of unequal investment of "human capital", i.e. of costs incurred for education, vocational training, on the job training, searching for information about prices and incomes etc.(Becker, 1964).

To elaborate, what is proposed by human capital thoery is that a person's knowledge and productive skills are a form of capital which are inputs for further production. Some human capital is acquired before an individual enters the labor market full-time, e.g. formal schooling. After an individual has entered the labor market, he increases his stock of human capital as he gains on-the-job experience and training. The cost of on-the-job

training is borne both by the individual and his employer. The cost of general training, i.e. training that can be of use to other firms, is borne by the individual since in a competitive market, competition among employers will insure that wages of those with general training will rise with their productivity. In the case of training specific to a firm, the employer will receive the benefits and therefore will pay for the training if such benefits exceed costs (Rosenfeld, 1976). This theory sees human beings as economically rational individuals who decide whether or not to invest in human capital, either before or after entry into the labor force.

In Sociology, since Blau and Duncan's work (1967), most of the empirical works have asserted that the attainment of status or income is caused mainly by background, personal characteristics, and levels of achievement (Granovetter, 1981). Sewell and Hauser's statement is representative:

> "We postulate that socioeconomic background affects mental ability, that background and ability affect educational attainment, that background, ability and education affect occupational achievement, and that all of the preceding affect earnings." (1975:50).

Furthermore, they claim that their model

> "is basic..... because it exhausts the influence of fundamental conditions of ascription and achievement.....Consequnetly, factors of luck or chance are implicated in the process of achievement to the extent of indeterminacy in the outcome of our basic model." (1975:182)

In other words, the total stock of personal resources determines earnings. As long as there are no changes in resources, earnings are assumed to be constant (Sorenson, 1975a).

Therefore, in studying the occupational attainment of women, the proponents of human capital theory will argue that the expected shorter period of life-time labor force attachment associated with child-rearing results in smaller human capital investments among women (Polachek, 1975; Zellner, 1975; Sandell and Shapiro, 1980). Another argument along the same line is that women anticipate discontinuous employment and therefore choose occupations in which temporary withdrawal from the labor force will not make their skills obsolete (Polachek, 1976, quoted in Blankenship, 1983). At the same time, however, continuous employment in these occupations does not enhance skill development (Oppenheimer, 1970). The result is that women gain little in the course of their career if they choose to enter occupations that allow temporary withdrawal.

In the mid-1970's, the human capital assumptions were challenged. Kreckel (1980:532) sums up two major weaknesses of the approach, which are widely shared by other critics:

> "One central weakness of this approach is that,..... the human capital school starts from the unwarranted presupposition that increased investment in human capital in fact do increase the productivity of labor in all circumstances, and that the employers, as rational homines economici, are compelled to behave accordingly. Another weakness is that the human capital approach does not seem to be able

> to explain differences in earnings and occupational status between workers of equivalent qualification (e.g. inequalities between sexes, between occupations, or between firms)."

In view of these deficiencies of the human capital theory , the labor segmentation perspective attempts to provide a systematic account of the structural inequalities.

LABOR SEGMENTATION PERSPECTIVE

Current segmentation perspective has developed essentially as a critique of, or supplement to, explanations of differnetial life chances which are cast in terms of individual characteristics, human capital or economic qualities. The main segmentation argument is that inequality and inequity which deeply affect individual life chances are in large measure a function of the way work is organized in modern society (Clairmont et al., 1983). The labor force is segmented along many lines [2]. Differences in sex and race are important determinants in the type of job held and its economic payoff. Job characteristics are the basis upon which the labor market is split into primary and secondary sectors (dual labor market theory). Productive sectors are classified in terms of concentration and centralization of capital (dual economy theory).

Doeringer and Piore (1971) and Gordon (1972) were the first ones to publicize more widely the dual labor market approach. In

their work Internal Labor Markets and Manpower Analysis (1971), Doeringer and Piore use the terms "internal labor market" and "external labor market" to elaborate the dichotomy of the dual labor market. The internal labor market is an "administrative unit, within which the pricing and allocation of labor is governed by a set of administrative rules and procedures"(pp.1-2). The rules give certain rights and privileges to workers that are not avialable to those outside the organization or occupation. The external labor market contains all other workers. The movement of people into and out of this market is governed by the economic variable of supply and demand at points of entry and exit.

Piore (1975) further develops this basic dichotomy in the dual labor market theory which comprises a primary sector and a secondary sector. The primary sector offers "jobs with relatively high wages, good working conditions, chances of advancement, equity and due process in the administration of work rules, and above all, employment stability" (p. 126). In the secondary sector, "jobs tend to be low-paying, with poorer working conditions, little chance of advancement, a highly personalized relationship between workers and supervisors which leaves wide latitude for favoritism and is conducive to harsh and capricious work discipline; and with considerable instability in jobs and a high turnover among the labor" (p. 126).

One of the key elements in the operation of the dual labor market is the existence of barriers to mobility between labor markets (Hodson and Kaufman, 1982; Clairmont et al., 1983). In the case of internal/external markets, the result is that the creation of internal labor markets shelters incumbents from competition with workers in the external labor market. In each internal market, there are one or more entry ports which are the only positions which can be entered directly from the external labor market. It is at these entry ports where employers exercise control over mobility between labor markets and it is here that the selection of workers with desired characteristics take place (Kerr, 1954; Doeringer and Piore, 1971).

There is also blockage of mobility between the primary and secondary labor markets (Gordon, 1972). Writers such as Thurow (1975) and Doeringer and Piore (1971) suggest that the entry into the primary labor market can be thought of as being governed by a queue. Workers are ordered in the entry queue according to their trainability, that is, according to the cost of training them as permanent workers. This can lead to a vicious circle for workers in the secondary labor market. The secondary labor market imposes unstable work histories on workers which primary labor market employers use as "evidence" of their undesirability. Therefore, it is very difficult, according to their argument, for secondary labor market workers to gain entrance into the primary labor market.

While dual labor market theory specifies segments in terms of job and/or workers' characteristics, dual economy writers focus on industrial structure and the economic organization of production as the bases for sectoral distinction. The economic production of advanced capitalist nations can be usefully divided into three sectors: one organized by large monopoly capital, one organized by small competitive capital, and one organized by the state. The two private capital sectors are referred to variously as the monoploy and competitive sectors (O'Conner, 1973), center and periphery firms (Averitt, 1968), the planning and market economies (Galbriath, 1973) and concentrated and unconcentrated industries (Bluestone, 1970). In all these conceptions, the large capital sector has the following features: ability to set prices, create markets, control the supply and cost of raw materials, influence the state and socialize the costs of production. Production is large scale and capital intensive, markets are national or international in scope, profits are high, wages are high and workers are heavily unionized. In the small capital sector, exactly the opposite conditions prevail. Wage and price competition are predominamt, productivity and profits are low, production is labor intensive, workers are not typically unionized and working conditions are poor (Hodson, 1977).

Based on the above conceptualization, writers (e.g. Tolbert et al., 1980; Beck et al., 1978; Tolbert, 1982; Berger and Piore,1980) form the differentiated economic sectors using

industry as their referent. Their assumption about the industrial structure of the United States is that there exists a dual economy. That is, American economy may be viewed as consisting of (a) core industries characterized by: oligopolistic market structres; high capital-to-labor ratios; the use of sophisticated technology; substantial training costs for skilled, supervisory and technical workers; high wages; the need for a literate and stable labor force; and the presence of strong trade union organizations, and (b) a periphery in which industries are characterized by their lack of market power; archaic management techniques; low capital requirements; low skill requirements; low wages; seasonal employment and/or an unstable work force; and little or no labor organization (Reich et al., 1973; Applebaum, 1979; Wallace and Kalleberg, 1981; D'Amico and Brown, 1982; Blankenship, 1983; Kerckhoff, 1984).

As can be seen from the above, along with the dualism in the industrial structure, there developed a corresponding dualism of working environment and wage and mobility patterns. Corporations in core industries with more stable production and sales, developed job structures and internal relations reflecting that stability; the bureaucratization of work rewards and the elicit of stable work habits in employees are good examples. In peripheral firms, where product demand is unstable, jobs and workers tend to be marked by instability (Reich et al., 1973).

There has been concern about the confusion of duality in the

economy with the duality in the labor market. In fact, the difference between dual labor market writers and dual economy writers may be treated as a difference in emphasis:

> "Dual labor market writers tend to stress the description of segmentation in labor market, with relatively little concern for the origin of such segmentation. Dual economy writers acknowledge the existence of segmentation in labor markets, but treat it as the consequence of more fundamental process of segmentation in the economic order." (Tolbert et al., 1980:1096-7)

The key contribution of the labor segmentation perspective is in its emphasis on the effect of the structure of the labor market on differences of labor outcomes. When applied to the analysis of women's occupatioanl attainment, this approach allows us to understand the limits and restrictions on the work available to women. Because of their discontinuous labor force participation, women may be put at the end of the selection queue since they are perceived to be unstable workers. Even if they are recruited, employers anticipate breaks in women's employment and might decide not to invest in their job training. Hence this approach suggests explanations of attainment inequalities and blocked opportunities that "do not blame the victim, do not hold women responsible for their particular place in the work world because of their passivity and dependence" (Acker, 1978:147).

I will draw on the dual economy perspective to introduce a structural component into the explanation of the occupational attainment of women. The main thrust of my argument is that economic segmentation interacts with individual variables to

influence the outcome of the attainment process. Chapter two spells out my approach to the problem and explains the key concepts employed.

Notes

1 This description of the human capital theory is taken from Kreckel (1980:532).

2 For a full description of the many variants of labor market segmentation, see Kreckel (1980) and Althauser and Kalleberg (1981).

CHAPTER TWO

INTERACTION OF INDIVIDUAL AND STRUCTURAL FACTORS

To conceptualize occupational mobility as an interplay between structural and individual characteristics is by now accepted in mobility research. Research on mobility took off after Blau and Duncan's 1967 analysis of the American occupational structure and has shown continuity as researchers seek to extend and further specify the basic status attainment model (Hall, 1983). By the mid-1970's some authors were suggesting that the hypothesized paradigm of the status attainment model is inadequate in explaining the process of status attainment (Sorensen, 1975b; Ornstein, 1976; Falk and Cosby, 1976, quoted in Kaufman and Richardson, 1982). This challenge points to an obvious need for the search for variables to add to the explained variance. Researchers find answers in the rich texture in labor market structure. Among them are Bibb and Form (1977), Hodson (1977), Beck, Horan and Tolbert (1978) who have emphasized the importance of industry sectors. Nevertheless, they also include several variables which are characteristic of the individualistic perspective. These include parental education and occupational prestige, as well as respondents' education and labor market experience. It can be said that it is an intellectual imperative to view both individual and strucutral factors as compatible rather than competitive

considerations in explaining the attainment process. Sorensen (1975a) has rightly pointed out:

> "Mobility is the movement of individuals among positions in a social strucutre. Most often these positions are jobs organized in occupations. Individuals differ in respect to characteristics that affect their probability of moving between a given set of positions: that is, mobility depends on individual ability, values, and motivation. Also, in order for an individual to move there must be a vacant position for him to occupy. Hence mobility is also a function of the distribution of opportunities given by the occupational structure." (p.336)

He continues his apt commentary:

> "It would be futile to deny that a person may increase his prestige and income by undertaking additional training and education. Human capital analysis provides a theory about how such additions to a person's level of resources come about. As a theory about the achievement process it is only partial since it seems equally futile to deny that at times a person may experience a gain in prestige and income because an opportunity for advancement presented itself as a result of the creation of a new job or the retirement of the incumbent of an old job. Also at times people are fired or pressured out of their job without an apparent change in resources but with losses in prestige and income as probable consequences. In these instances, there are structural sources to the variation in achievement. A comprehensive theory of occupational achievement should take both individual and structural influences on the achievement process into account." (P. 341)

This paper takes the same stance that both individual and structural factors have an influence on women's occupational attainment. Emphasis will be put on women's experience in the labor market (in terms of industry) sector as well as their employment histories. Other variables included in the analysis

are socioeconomic background and job-relevant resources of respondents.

SOCIOECONOMIC BACKGROUND

It has been rather clearly demonstrated that there is a relationship among parental occupation, education and wealth and the occupational attainment of children. How does socioeconomic background affect one's level of occupational attainment? In one influential piece of work, Blau (1956) suggests that socioeconomic background influences career outcomes in two ways: first by shaping the social development of the individual and thus his or her career orientation, self concept, values and interests; and second by affecting the occupational opportunities available to the individual. Blau and Duncan (1967) find that the most influential forces on career attainment in men's social class background are the father's occupation and education. These two variables predict strongly a man's education and his first job which in turn can predict their current job. Regarding women, it has also been found that the father's occupation exerts a direct positive effect on the occupational status of females (Featherman and Hauser, 1976; McClendon, 1976). Furthermore, due to like-sexed role modeling, the mother's occupation and education are necessary variables to be included in models that try to explain female occupational attainment (Rosenfeld, 1978a; 1978b; Marini, 1980; Treiman and

Terrell, 1975).

JOB-RELEVANT RESOURCES

In the generally accepted view that industrial societies are largely meritocratic, level of educational attainment is a kind of personal resource that has become one of the major determinants of status. Schooling is influential for sorting womanpower into jobs (Treas and Tyree, 1979). Studies have found that the most important variable in explaining the occupational status of working women is their educational attainment (see, for example, Featherman and Hauser, 1976; Treiman and Terrell, 1975; McClendon, 1976). The main task here is to find out the effect of labor market sector and working experience when education is held constant.

Vocational training other than regular school plus occupational training taken aside from on-the-job training are other kinds of personal resources which can add to the stock of human capital. More training of this sort, theoretically, will increase the productivity of a worker. Therefore, workers with more training should gain more occupational rewards than those with little or no training, other things being equal.

CAREER ORIGIN

Though not all women think of their first job in terms of their life context, their very first job does begin a series of stages. Given the fact that most women have a long range pattern of work force participation, though interrupted by marriage and child-bearing, it is reasonable to think of women having a career line. Entering the work force by occupying a job with possibilities for advancement would bring about more favorable result than otherwise. Hence, it is central to examine the effect of career origin on women's occupational attainment.

The importance of career origin has been investigated by Blau and Duncan (1967). They examine the role of career beginnings as intervening links between social origins and subsequent careers. Their data testify that social origins exert a direct effect on later careers in addition to that mediated by career beginnings. Their major findings are that men entering high white-collar occupations have already experienced much movement from social origins, which must entail mostly upward mobility, and experience less movement subsequently in their own careers, and that men entering farm occupations, in contrast, have as yet experienced little movement in their own careers, which must be primarily upward mobility off the farm.

Rosen (1972, quoted in Birnbaum, 1975) incorporates career origin into a human capital framework. His model of the labor

market is based on an implicit market for learning opportunities. Since different job experiences offer different opportunities for learning, initial job experience is a basic determinant of future advancement opportunities. So, initial jobs with a "future" really carry with them an implied pattern of lifetime work activity and attainment. While individuals can switch jobs, the switching is related to initial position (Birnbaum, 1975).

Emphasizing barriers to mobility, the segmentation perspective argues that previous work activities rule out certain future possibilites. Rather than emphasizing worker choice, as does the human capital theory, the segmentation theories emphasize that once career origin is determined, opportunities for future job movement can narrow because of discrimination, limited opportunities for training, certification, promotion, etc. Lack of mobility and on-the-job training opportunities imply that career origins may be important determinants of career ending (Piore, 1975).

LABOR MARKET SECTORAL LOCATION

Looking at career origin from the segmentation perspective, it is logical to hypothesize that the sector of the labor market where a young woman enters when she starts full-time work will partly determine her career advancement. The point of this structural argument is that once a woman enters a sector, her

chances for mobility are in some way determined.

Spilerman (1977) has distinguished between "orderly" and "chaotic" career lines and suggested criteria for identifying them. Among the characteristics for orderly tracks are requirements that earnings and occupational prestige increase steadily overtime. In contrast, chaotic career lines are posited to exhibit no such regularities in earnings or prestige increments. From an industrial segmentation approach, it follows that mobility patterns in the core sector should approximate orderly career lines and that patterns in the periphery sector should resemble chaotic career lines.

EMPLOYMENT HISTORY

To fully account for the occupatioanl attainment of women, it is necessary to look into their employment history. Since women's work force participation is mostly discontinuous, it is vital to take into account the extent of employment experience in understanding their process of occupational attainment. Many researchers posit that marriage, dependents and age composition of children will depress the occupational attainment of women. But Rosenfeld (1976), in an analysis of NLS data on mature women finds that any constraining effects of marriage and related familial responsibilities seem to be indirect ones through the extent of employment experience. In other words, as long as women are in the work force, the effect of marriage and so on

may not always be as profound as hypothesized. This paper is in a position to consider the actual extent of employment experience rather than taking proxies like marital status, number of children, family size or age of children, etc.

Two aspects of employment history are important. First, the extent of employment represents the investment behavior of women. The longer a woman stays in the work force, the more chances she will have to receive job-related human capital. Also, the longer a woman is in the labor market, the longer the period over which she will receive returns on a given stock of human capital and the more profitable such investment will be (Rosenfeld, 1976). Therefore, inexperience is a handicap for women, resulting in less achievement at the occupational level, as compared with women who have more working experience. Second, employment experience attendant to different industrial sectors will render different results. Along this line, it is hypothesized that the longer a woman works in the core industrial sector, the higher her occupational attainment will be as compared with her counterpart in the periphery industrial sector, net of other factors.

A SUMMARY OF HYPOTHESES

Putting everything together, the occupational status of women is hypothesized to be most strongly influenced by educational attainment. Additional variance in occupational status may be

accounted for by their socioeconomic background, by the labor market sector they enter when they started work, by their employment experience and by the extent of their employment experience with a particular labor market sector. To summarize the foregoing discussions, the following list of hypotheses is presented.

Socioeconomic background and occupational attainment

1. Father's educational attainment is positively related to women's occupational attainemt.
2. Father's occupational attainment is positively related to women's occupational attainment.
3. Mother's educational attainment is positively related to women's occupational attainment.
4. Mother's occupational attainment is positively related to women's occupational attainment.

Job-relevant resources and occupational attainment

5. The higher the educational attainment of women, the higher their occupational attainment.
6. The more training other than formal education women undergo, the higher is their occupational attainment.

Labor market sectoral location and occupational attainment

7. At their career origin, women in the core industrial sector achieve more occupationally than their counterparts in the periphery sector.
8. At their early career stage, women who worked in the core sector gained higher status in the occupational hierarchy than did those who worked in the periphery sector.
9. The more extensively women work in the core industrial sector, the higher will their occupational attainment be.

Career origin and occupational attainment

10. Women who enter the core industrial sector at their career origin will have higher occupational attainment than those who enter the periphery sector.
11. The higher the occupational attainment at career origin, the higher the occupational status at a later stage.

Employment history and occupational attainment

12. The more extensively women participate in the labor force, the higher is their occupational attainment.

Precedent occupational attainment and subsequent occupational attainment

13. The higher the status achieved in an earlier stage, the higher will be the occupational attainment at a later stage.

The operationalizations of the specific variables will be addressed in the next chapter, after an introduction to the data set to be utilized. The model for analysis will follow.

CHAPTER THREE

THE DATA, OPERATIONALIZATION OF VARIABLES AND THE MODEL

THE DATA

In order to examine the relationship between career origins, labor market sectoral locations, the extent of attendant employment experience and occupational attainment, longitudinal data are required. The essence of longitudinal research is that it is based upon characteristics of the same group of individuals at two or more points of time. Longitudinal analysis, therefore, involves either an examination of relationships among characteristics of these individuals in different time periods or of changes in one or more of their characteristics over time. Longitudinal data provide the only means of identifying the determining factors in developmental processes on which cross-sectional data can shed little, if any, light. Moreover, they permit determination of the direction of causation between correlated variables, or may make it clear that an ostensible relationship between two variables really reflects the influence of one or more variables not included in the analysis (Parnes, 1979).

The National Longitudinal Surveys (NLS) have the purpose of identifying the factors accounting for variations in the labor

market behavior and experience of the four age-sex subsets (women 30-44 and 14-24, men 45-59 and 14-24 as of 1967) of the U.S. population represented by the samples. The major categories of variables included in the surveys are:

- employment and unemployment
- job history
- socioeconomic and human capital variables
- financial characteristics
- social-psychological variables

and -environmental variables.

Many of the variables examined are common to all four cohorts, but some are specific to a given cohort. All in all, the NLS data are by far one of the most informative data sets available for labor market analysis.

For the purpose of this study, the information on mature women aged 30-44 as of 1967 will be used. A national probability sample of the civilian noninstitutionalized population of women 30-44 years of age as of April, 1967 was interviewed. This sample included 5083 women with an over sampling of nonwhite women (N=1477)[1]. These women have been reinterviewed every year or so since. The degree of attrition over the survey years has been relatively small (Rosenfeld, 1978b). And, the data have been shown to be generalizable to the population of women in the United States (Rosenfeld, 1976).

Data from 1967 to 1976 interviews are available for my analysis. They allow me to identify the very first jobs of the women as well as to divide their careers into two major phases: early career (from first to 1967 occupation) and mid-career (from 1967 to 1976). Because interest is focused on the women's career origins and occupational attainment in early and mid-career phases, only those who reported a "first" occupation (to be elaborated below) and were employed during the week of interviews both in 1967 and 1976 will be included in the subsample for analysis.

OPERATIONALIZATION OF VARIABLES

Occupational attainment

The primary measures of occupational attainment are wages, annual earnings and social status (prestige) of the job. This study intends to use social status of the women's "first", 1967, and 1976 jobs respectively to measure their occupational attainment at carrer origin, early career and mid-career.

The Duncan index of occupational status (SEI) is widely used in sociological models of status for men. Duncan (1961) derived his scale by studying the National Opinion Research Center's prestige rankings for 45 occupations, fitting a regression equation of mean education and income of each occupation to the rankings, and then using the weight thus derived to rank all

occupations. This procedure resulted in a scale from 0-96. The Duncan SEI is attached in Appendix I.

The SEI has been used quite widely in the study of women's occupational attainment and critics question its validity because it ranks occupation according to the status of men employed in them (e.g., Applebaum and Koppel, 1979; Acker, 1978). In fact there have been several discussions of the appropriateness of the SEI as a measure of the occupational status when the incumbent is a woman (e.g., Sheehy, 1975; Acker, 1978; Marini, 1980). Featherman and Hauser (1976, note 1) argue theoretically that:

> "At a conceptual level, we regard occupational socioeconomic status to be a characteristic of a role, unaffected by characteristics of the role incumbent."

Emperical evidence also lends support to the use of SEI scores when the incumbent is a woman. Shea et al. (1970, quoted in Rosenfeld, 1976) follow Duncan's procedures using women's characteristics. It is found in their analysis that the women's index based on 1950 data for the original 45 occupations correlated .93 with Duncan's index for men. A second index for women was created using 1960 data to test the stability of SEI scores for women occupational incumbents. The correlation between the two indices for women was again .93. Shea et al. (1970:248, quoted in Rosenfeld, 1976) concluded:

> ".....Because this readily available and widely understood index (SEI) provides a good measure of

> the vertical position of the occupations of both men and women based on income and education, it can be used as a measure of the relative desireability or attractiveness of the occupational assignments."

Treiman and Terrell (1975) find that the socioeconomic structure of occupations tends to be basically similar for the male and the female labor force. Job for job, they show, men and women are equally well educated; and although women are systematically paid less than men doing the same work, the correlation between male and female earnings in specific occupations is extremely high, in excess of .9. Thus, it is no surprise that the Duncan scores which are based on the education and income level of males, are quite well predicted by the education and income level of female incumbents of the same occupations.

Considerations of the evidence seem to indicate that this available and widely understood index can be used as an approximate measure of level of women's positions within the occupational hierarchy. The SEI score is also chosen because it is a continuous measure. Continuous measures have two merits. One, the occupational mobility process of women may be relatively small in magnitude, and the use of continuous measures allows us to measure them accurately. Two, the use of continuous measures makes it possible to employ multivariate methods which cannot be used easily when the dependent variable is measured as a set of loosely ordered categories (Ornstein, 1976).

Career Origin

Career origin is the job taken by a person after leaving school. In the literature of labor market entry, several ways are reported to have been used to determine the first job (summarized by Stephenson, Jr., 1979):

- the first job at which the respondent worked for two or more consecutive weeks after discontinuing regular school (Kohen and Andrisani, 1973);
- the first job after one last attended school (Duncan et al., 1972);
- when the individual leaves full-time schooling and participates in the labor force for a period of more than sixteen months without returning to full-time education during that time (Orstein, 1976).

In the NLS, occupational and employment histories before 1967 were taken with reference to intervals formed by a woman's leaving school full-time, her first marriage and her first child. Thus, "first" occupations vary according to a woman's marital and child-bearing history. For never-married women (as of 1967), information about the first job is available but for the ever married women, there is information about the longest job held between leaving school and the first marriage. This longest job might not be the first job held after leaving school but this is a job held very near the beginning of a woman's career. Further, for the majority of these women, it was their

first job.

Labor Market Sector

As noted in Chapter two, segmentation has been operationalized at the level of industry, firm, job and worker characteristics. An aggregated approach has dominated recent research (Althauser and Kalleberg, 1981). Gender and race have been used as proxies for sectoral location because ethnic minorities and females are overrepresented in the competing/secondary/periphery sector. Andrisani (1973, quoted in Cain, 1976) simply selected the three-digit occupations and industries where median earnings are below the 33rd percentile of the labor force to define secondary workers. Hodson (1977) used the characteristics of detailed industry categories as a proxy for the core and periphery sectors. The most recent empirical and theoretical advances in this literature have been made by those who locate the source of economic segmentation in the industrial organization of production (Blankenship, 1983). A measure of industrial segmentation that groups industries into core and periphery sectors in a dual economy scheme was developed by Tolbert et al. (1980, see Appendix II). Three sets of indicators, namely, economic scale (assets, profit, and the like), product market strength (concentration), and labor market (turnover, unionization, earnings, among others) were utilized to make up the complete measure. This measure of industrial segmentation will be employed to measure the location of women in the labor

market sector. This operationalization of economic sectors has been criticized on the ground that their conceptualization is contaminated by a circularity between the defining characteristics of economic segmentation and outcomes resulting from economic segmentation (Hodson and Kaufman, 1981). To this charge of "circularity" in the construction of their measure of economic segmentation, Horan et al.(1981) defended:

> "..... Our reading of the dual economy literature led us to identify the fundamental underlying theoretical position as that of the existence of systematic causal relationships between the industrial organization of production and the characteristics of industrial labor markets. While our analysis cannot provide a test of the direction of the causal flow between such elements, it can and does provide a test both for the existence of systematic relationships between the two and for the correspondence between observed relationships and those expected on theoretical grounds. In short, the distinguishing characteristic of dual economy theory, as opposed to dual labor market theory, is the proposal of a correspondence between the economic organization of industry and the characteristics of industrial labor markets." (Pp. 888-889)

Moreover, their categorization of two sectors is criticized as arbitrary, Beck et al. (1980b) present their position as follows:

> "We do not argue that the industrial economy is divisible only into two mutually exclusive sectors. Rather it is our position that the dual economy approach represents a convenient, albeit simplified, starting point for research into the effects of economic segmentation on labor market outcomes." (p. 113)

To date, this scheme seems to represent the best available

measures of sectoral location (Blankenship, 1983).

Because Tolbert et al. used 1970 Census codes of industries while the NLS data have information on industries using the 1960 Census Code, recoding is necessary. The following are examples:

Industry	1970 Census Code	1960 Census Code	Sector
Textile-knitting mills	307	346	Periphery
Insurance	717	726	Core

Appendix III lists the industries, detailed 1960 Census Codes and their sectoral assignment.[2]

Employment History

The NLS data set does not provide women's complete work histories, although it provides more of their work histories than other data sets. Only rough indicators of employment histories before 1967 are available, and in 1972-73 and 1974-75 when no interviews were carried out, information on work histories is absent. With information available, women's employment history is defined as follows:

- number of years worked 6 or more months between attending school and 1967

- number of weeks worked in last 12 months as of 1968 interview
- number of weeks worked in last 12 months as of 1969 interview
- number of weeks worked between 1969 and 1971 interviews
- number of weeks worked between 1971 and 1972 interviews
- number of weeks worked in last 12 months as of 1974 interview
- number of weeks worked in last 12 months as of 1976 interview.

Because the number of years between attending school and 1967 varies with women's age and the amount of education they received, their employment history is expressed in terms of percent of years between leaving school and 1967 employed at least six months. The employment history between 1968 and 1976 is expressed as percent of weeks worked between 1968 and 1976.

Extent of Employment in the Core/Periphery Sector

Information on industries is available for "first", 1967, 1968, 1969, 1971, 1972, 1974 and 1976 jobs, therefore only the extent of employment in the core sector between 1967 and 1976 can be calculated. It is a summary measure of percent of weeks between 1967 and 1976 working in the core industrial sector.

Socioeconomic background

Socioeconomic status of parental family is measured by highest grade completed by father (or head of household) and mother, and by the occupational attainment (measured by SEI) of parents when respondent was 15.

Job-relevant resources

Educational attainment is measured by the highest grade completed by respondent reported in 1967.

Data on training other than regular school is incomplete. NLS have information on training as of 1967 interview and between 1968 and 1969, and as of 1971 and 1972 interviews. To utilize all these data, two variables are employed, one is whether the respondent has taken any technical or vocational training other than regular school as of 1967 (1=yes, 0=no) and the other is the percent of years between 1968 and 1972 having received occupational training.

THE MODEL

This study analyzes the occupational attainment of women at three stages: at their career origin, in their early career and in their mid-career. Due to the way the data are collected, the analyses will focus on three dependent variables: first, the

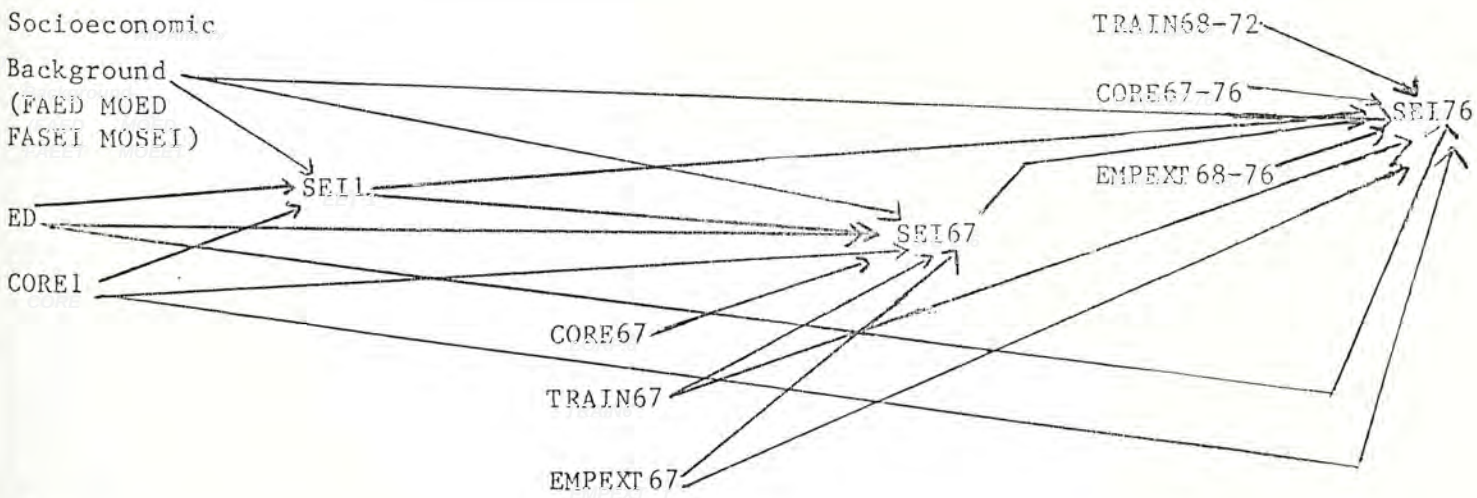
occupational status of the "first" job; second, the occupational status of the 1967 job; and third, the occupational status of the 1976 job. The general form for analysis is as follows:

$$\text{Occupational attainment}_{t2} = f(\text{Occupational attainment}_{t1},$$
socioeconomic backgound, job-relevant resources,

extent of employment, labor market sectoral location)

Figure 1 diagrams the model of the relationships between occupational attainment and its indenpendent variables. The principal method of analysis will be the least squares regression analysis. Table 1 describes all the variables to be included in the analysis.

Figure 1. Model of the Relationship between Occupational Attainment and its Independent Variables[a]



[a] See Table 1 for definition of variables.

Table 1. Description of Variables

Variable Name	Description
1. ED	Highest year of school completed as of 1967
2. FAED	Highest year of school completed by father or head of household
3. MOED	Highest year of school completed by mother
4. FASEI	Socioeconomic status of father or head of household when respondent was 15
5. MOSEI	Socioeconomic status of mother when respondent was 15
6. CORE1	"First" job is in the core industrial sector, 1=yes, 0=no
7. SEI1	Socioeconomic status of "first" job
8. EMPEXT67	Percent of years between leaving school and 1967 employed at least six months
9. TRAIN67	Technical or vocational training other than regular school as of 1967, 1=yes, 0=no
10. CORE67	1967 job is in the core industrial sector
11. SEI67	Socioeconomic status of 1967 job
12. TRAIN68-72	Percent of years between 1968 and 1972 having received occupational training
13. EMPEXT68-76	Percent of weeks worked between 1968 and 1976
14. CORE67-76	Percent of weeks between 1967 and 1976 working in the core industrial sector
15. SEI76	Socioeconomic status of 1976 job

This study plans to analyze separately the occupational attainment of white and nonwhite (mostly black) women. It has long been known that nonwhites, mostly blacks, are disproportionately represented in lower-paying and lower-status jobs. Though some real gains were made by them in the 1960s, entry barriers in certain occupations remain. In the case of women, however, there have been some recent suggestions that black women have begun to attain income parity with white women (Wallace, 1973, Gurin, 1974, quoted in Applebaum and Koppel, 1978). As the women in the sample should have entered the labor force prior to 1960, not being white at that time should have included a different career history in terms of career origin and subsequent occupational mobility. Thus it is advisable to do separate analyses for the two races.

Notes

1 This study intends to do all analyses separately by race, so the correction for oversampling of nonwhites is not necessary.

2 This scheme, when used to measure the industry sectors of the women's "first" jobs, has a degree of validity. First, it corresponds to the narrative description in the literature. Second, the strucutre of the American economy has been shaped by a merger wave began shortly after World War II and has continued into the late 1960's (Averitt, 1968). The majority of women in the subsample could only have entered the labor force in the post World War II years.

CHAPTER FOUR

MODELS OF WOMEN'S OCCUPATIONAL ATTAINMENT AND LABOR MARKET STRUCTURE

The purpose of this chapter is to explain the variations in women's occupational careers. Variations might be, as discussed in previous chapters, due to differences among women in their socioeconomic background, in their job-relevant resources (e.g., in the extent of their education and vocational training), and in the extent of their employment experience.

Of special interest in this study is whether structural factors, as represented by differences in the labor market sectoral location are related to variations in occupational attainment, net of other factors.

In chapters one and two, it was argued that those working in the core industrial sector have more opportunities for training and mobility. One question to be answered here, then, is whether working in the core industrial sector and having more extensive experience in this particular sector, results in occupational status gains. Emphasis is put on the career origins. An argument was made earlier that career origin is of great importance in determining career advancement. Hence, a second question to be answered , concerning the structural factor, will then be if the labor market sectoral location of women's first

jobs affects their later occupational attainment. Implicit in this argument is the hypothesis that the status of jobs women hold at one time affects that of the later career.

To answer these questions, a subsample was chosen of the NLS women who reported a first job, a current or last job in the 1967 interview, and also a current or last job in the 1976 interview. As mentioned in the last chapter, information available enables the comparison of the occupational status of women in three different points of their work lives. The points are the career origin, the early career and the mid-career. The effects of the labor market sectoral location and the extent of employment in a specific sector on long-term occupational gains can also be tested.

The analyses which follow will proceed in a sequence. The first is a model of women's occupational attainment at their career origins. The second model will be one of movement from their first occupation to their 1967 occupation, which is a study of their early career attainment. The third model studies the occupational attainment at their mid-career phase.

AN OVERVIEW

In the subsample, there are 1560 whites and 497 nonwhites whose information on all the variables to be utilized is complete[1].

Table 2 shows the mean and standard deviation for the variables. Comparing the level of first jobs with 1967 and 1976 occupations, it is found that white women in this subsample, on the average, experience slight downward mobility. Though their attainment in 1976 is higher than that in 1967, the increase is too trivial to be of any significance; and, it is about 0.2 SEI points less than their attainment in first jobs. At these three times in their career, they are, generally speaking, at the level of clerical workers within the occupational heirarchy. Nonwhite women, as a group, show a small amount and gradual increase in their SEI scores. Their status increases, on the average, approximately 3 SEI points from their career origins to their early career stage, and 2.6 SEI points from early career to mid-career stage. The total increase from beginning to mid-career is about 5.6 SEI points. However, nonwhite women begin their careers at a level much lower than that of white women. They, on the whole, are at the level of service workers at their career origins and move up to the level of operative laborers at their mid-career stage in the occupational hierarchy. The race difference in the mean status in these three phases identified are 22.3, 18.54 and 16.43 SEI points respectively.

Table 2. Means and Standard Deviations for Variables in Models of Occupational Attainment: Based on women reporting a first job, 1967 current or last job and 1976 current or last job

	WHITES (N=1560)		NONWHITES (N=497)	
Variables[a]	Mean	S.D.	Mean	S.D.
Socioeconomic Background				
FAED	8.96	3.27	6.31	2.91
MOED	9.25	2.85	7.38	2.55
FASEI	28.04	15.78	15.38	9.02
MOSEI	26.69	10.61	12.23	7.89
Job-relevant Resources				
ED	11.81	2.23	10.26	3.06
TRAIN67	0.23	0.42	0.25	0.43
TRAIN68-72	12.20	24.35	12.61	24.91
Extent of Employment				
EMPEXT67	50.73	30.36	66.00	30.11
EMPEXT68-76	59.73	32.12	62.76	32.58
Labor Market Sector				
CORE1	0.51	0.50	0.14	0.35
CORE67	0.39	0.49	0.18	0.38
CORE67-76	32.64	40.87	21.75	35.76
Occupational Attainment				
SEI1	41.63	18.84	19.38	18.03
SEI67	40.94	19.43	22.40	20.01
SEI76	41.44	20.47	25.01	20.79

Table 2 (Continued)

Note: Not all women reported FAED, MOED, FASEI and MOSEI. Where no information is available, the mean of the respective race was assigned. This will reduce the standard deviations of the variables. The percentage of women in this subsample having reported these variables and the means of the respective race are as follows:

	WHITES		NONWHITES	
Variables[a]	% reported	Mean	% reported	Mean
FAED	81	8.70	67	6.32
MOED	76	9.24	57	7.29
FASEI	61	28.15	75	15.36
MOSEI	29	26.65	47	12.03

---

[a] Variables are defined in Table 1.

The scores of the variables measuring the labor market sector location also vary between races. White women are more likely than nonwhite women to start their career in the core industrial sector and the former's experience with the core market in their work lives are more extensive than the latter's.

It is found that nonwhite women participate more extensively in the labor force than whites. The difference is greater in the early career phase than in the mid-career phase.

As regards job-relevant personal resources, women of the two races do not show a significant difference. On the average, white women receive one and a half more years of education than the nonwhite women. All women, on the average, attain a high school level. And, nonwhite women are just as likely as white women to acquire vocational training other than regular school or any occupational training when they are in the labor force.

A comparison of the scores on variables constituting the dimension of socioeconomic background shows that white women come form families that are higher in socioeconomic level than nonwhite women.

All these difference by race justify the decision to do separate analyses for whites and nonwhites.

Before reporting on the results of the regression models, a word

about the methodological issue of multicollinearity is in order. When variables measuring the same phenomenon are included in a model, the problem of overspecification arises. To check whether there are any problems of multicollinearity or not, one can simply go through the correlation matrix of the variables and inspect the correlations pair by pair. If the correlation of a pair of independent variables does not exceed 0.50, the problem is not pronounced (Hanushek and Jackson, 1977). And extreme collinearity exists only when inter-correlations are in the 0.8 to 1.0 range (Nie et al., 1975). Simple correlations among variables used in the models are reported in Tables 3, 6 and 9. In the white subsample, those pairs of independent variables whose correlation exceeds 0.50 are father's education and mother's education (0.54), education and occupational attainment at first job (0.59), education and occupational attainment at 1967 job (0.54), occupational attainment at first job and at 1967 job (0.60). In the nonwhite subsample, those pairs of variables whose correlation exceeds 0.50 are education and occupatioanl attainment at first job (0.59), education and occupatioanl attainment at 1967 job (0.63) and occupational attainment at first job and at 1967 job (0.68). These results are not unexpected and they are not high enough to create the problem of multicollinearity.

SAS has an option for collinearity diagnostics. The approach follows that of Belsley et al. (1980). Collinearity analyses are done to make sure that there is no multicollinearity problem

among the independent variables. For each variable, the proportion of the variance of the estimate accounted for by each principal component is printed. A collinearity problem occurs when a component associated with a high condition index (that is, the square root of the ratio of the largest eigenvalue to each individual eigenvalue) contributes strongly to the variance of two or more variables (SAS Institute Inc, 1982). A condition index of 10 is considered high enough for the presence of collinearity to begin to be observed and estimates shall be deemed degraded when 0.5 of the varaince of two or more coefficients is associated with a single high condition index. The proportion is deemed strong when over 0.8 is attained (Belsley et al., 1980). The results of the analyses will be reported separately in the following sections.

WOMEN'S OCCUPATIONAL ATTAINMENT AT CAREER ORIGIN

Table 3 reports the simple correlations among the variables used in this model. As expected, among whites and nonwhites alike, the occupational attainment of women at their career origins is positively related to their own educational attainment, parents' educational and occupational attainment. A woman who works in the core industrial sector also contributes to her occupational attainment.

Table 3. Zero-order Correlations between Variables in Model of Women's Occupational Attainment at Career Origin: values for whites above the diagonal, for nonwhites, below

Variables[a]	ED	FAED	MOED	FASEI	MOSEI	COREI	SEII
ED		0.39	0.30	0.28	0.19	0.02	0.59
FAED	0.25		0.54	0.37	0.17	0.30	0.23
MOED	0.31	0.34		0.24	0.21	0.05	0.19
FASEI	0.18	0.25	0.16		0.28	0.01	0.21
MOSEI	0.15	0.15	0.22	0.38		0.02	0.18
COREI	0.17	0.12	0.12	0.07	0.04		0.14
SEII	0.59	0.20	0.24	0.16	0.10	0.23	

[a] Variables are defined in Table 1.

A collinearity diagnostics is done to check if there is any problem of multicollinearity among the independent variables in the model. Table 4 shows the results of the diagnostics. For whites, two condition indices larger than 10 are found, they are 11.960 and 19.060. For eac of these condition indices, only one coefficient has a variance of more than 0.5 (0.9212 and 0.8504 respectively) associated with it. For nonwhites, only one condition index larger than 10 appears which is 11.859, and only one coefficient associated with it exceeds the value of 0.5 which is 0.6015. Hence, the conclusion that there is no multicollinearity problem observed in the model can be made.

Table 4. Collinearity Diagnostics for Model of Women's Occupational Attainment at Career Origin by Race

WHITES

Number	Eigenvalue	Condition Index	Variance Proportions Portion Intercep	Portion ED*	Portion FAED*
1	5.120	1.000	0.0007	0.0007	0.0020
2	0.466456	3.622	0.0003	0.0006	0.0033
3	0.169319	6.012	0.0111	0.0068	0.0030
4	0.116280	7.255	0.0001	0.0002	0.1753
5	0.068360	9.462	0.0994	0.1099	0.3744
6	0.042782	11.960	0.0214	0.0314	0.4406
7	0.016847	19.060	0.8670	0.8504	0.0014

Table 4 (Continued)

WHITES

Number	Variance Proportions Portion MOED*	Portion FASEI*	Portion MOSEI*	Portion COREI*
1	0.0015	0.0043	0.0029	0.0077
2	0.0015	0.0185	0.0043	0.9447
3	0.0201	0.9017	0.0160	0.0301
4	0.0417	0.0002	0.6905	0.0000
5	0.0122	0.0317	0.2778	0.0123
6	0.9212	0.0264	0.0090	0.0001
7	0.0018	0.0172	0.0075	0.0052

Table 4 (Continued)

NONWHITES

Number	Eigenvalue	Condition Index	Variance Proportions Portion Intercep	Portion ED*	Portion FAED*
1	5.546	1.000	0.0017	0.0021	0.0042
2	0.819127	2.602	0.0006	0.0002	0.0006
3	0.246748	4.751	0.0126	0.0193	0.0657
4	0.168751	5.733	0.0027	0.0042	0.0081
5	0.114238	6.968	0.0439	0.0855	0.8917
6	0.065561	9.198	0.0365	0.2871	0.0285
7	0.039437	11.859	0.9019	0.6015	0.0011

Table 4 (Continued)

NONWHITES

Number	Variance Proportions Portion MOED*	Portion FASEI*	Portion MOSEI*	Portion CORE1*
1	0.0026	0.0057	0.0064	0.0058
2	0.0005	0.0022	0.0041	0.9693
3	0.0237	0.1325	0.5280	0.0088
4	0.0169	0.8121	0.3992	0.0002
5	0.0231	0.0255	0.0513	0.0000
6	0.8688	0.0178	0.0103	0.0001
7	0.0645	0.0042	0.0007	0.0157

* Variables are defined in Table 1.

The actual effects of women's socioeconomic background, job-relevant resources and labor market sectoral location on their status at their career origin are shown in Table 5. For both white and nonwhite women, the variables represent job-relevant resources, i.e., education, and labor market sectoral location, i.e., whether they work in the core industrial sector or not have significant effects on their attainment at their career origin. Specifically, a one year increase in educational level attained leads to an increase of 4.71 SEI points for white women. For nonwhite women, a one year increase in education leads to an increase of 3.22 SEI points. In other words, whites get a somewhat greater return in the form of occupational status related to education than nonwhites. The estimates for both coefficients of the parameters are statistically significant at the .01 level.

Table 5. Simple Model of Women's Occupational Attainment at Career Origin: Regression of Socioeconomic Status of "First" Occupation on Education, Family Background and Labor Market Segment by Race (Standard Errors in Parentheses)

Independent Variables[a]	WHITES Metric Coefficients	T	NONWHITES Metric Coefficients	T
ED	4.71 (0.18)	25.52*	3.22 (0.23)	14.14*
FAED	0.38 (0.15)	2.64*	0.12 (0.24)	0.49
MOED	-0.25 (0.16)	-1.56	0.32 (0.32)	1.12
FASEI	0.02 (0.03)	0.92	0.11 (0.08)	1.38
MOSEI	0.12 (0.04)	3.18*	-0.06 (0.09)	-0.64
CORE1	4.66 (0.76)	6.13*	6.81 (1.90)	3.59*
Constant	-21.28		-18.61	
R^2	0.37		0.38	
N	1560		497	

* $p<0.01$

[a] Variables are defined in Table 1.

There are also differences by race in the relative effect of labor market sectoral location. Nonwhites get somewhat greater returns in the form of status gain relative to working in the core industrial sector than do whites. For the former, working in the core industrial sector brings an increase of 6.81 SEI points while for the latter, it brings an increase of 4.66 SEI points. Both effects are statistically significant at the .01 level. It is worth noting that the effect of labor market sectoral location is almost as great as one year of education for whites and is more than twice as great for nonwhites.

Socioeconomic background has different effects on the occupational attainment of white and nonwhite women. For white women, the father's educational and both father's and mother's occupational attainment have positive effects on their occupational attainment while mother's education has a negative effect. Among these variables, the father's education and mother's occupational status are both significant at the .01 level[2]. It is found that one year of father's education can result in 0.38 SEI point and one SEI point increase in mother's occupational attainment brings about 0.12 SEI point increase for white women at their career origin. For nonwhite women, the father's educational and occupational attainment have slight positive effects while mother's occupational attainment has slight negative effect on their first job status. However, none of these results are statistically significant.

In sum, this model of occupational attainment at career origin has about the same explanatory power for white and nonwhite women. The variables in the model can account for 37% and 38% variance in white and nonwhite women's occupational attainment at their career origin respectively.

WOMEN'S OCCUPATIONAL ATTAINMENT AT EARLY CAREER

To study women's occupational attainment at their early career stage, the logical approach is to include additional variables of the extent of employment and vocational training and the labor market sectoral location of their job in 1967. The occupational attainment at career origin should also be included in order to measure the effect of earlier status gain on later attainment.

Table 6 reports on the simple correlations of the variables included in the model. It is shown that all the variables contribute positively to the occupational attainment of nonwhite women. For the white women, except for vocational training other than regular school as of 1967, which has no relationship with their occupational attainment, all other variables are found to be positively related to occupational attainment.

Table 6. Zero-order Correlations between Variables in Model of Women's Occupational Attainment at Early Career: values for whites above the diagonal, for nonwhites, below

Variables[a]	ED	FAED	MOED	FASEI	MOSEI	CORE1
ED		0.39	0.30	0.28	0.19	0.02
FAED	0.25		0.54	0.37	0.17	0.03
MOED	0.31	0.34		0.24	0.21	0.05
FASEI	0.18	0.25	0.16		0.28	0.01
MOSEI	0.15	0.15	0.22	0.38		0.02
CORE1	0.17	0.12	0.12	0.07	0.04	
SEI1	0.59	0.20	0.24	0.16	0.10	0.23
EMPEXT67	0.07	0.00	-0.02	0.00	-0.01	-0.03
TRAIN67	0.00	-0.02	0.03	-0.02	-0.02	-0.05
CORE67	0.20	0.10	0.16	0.10	0.10	0.40
SEI67	0.63	0.21	0.24	0.13	0.23	0.21

Table 6 (Continued)

Variables[a]	SEI1	EMPEXT67	TRAIN67	CORE67	SEI67
ED	0.59	0.06	0.00	-0.03	0.54
FAED	0.23	-0.05	0.04	0.00	0.21
MOED	0.19	-0.04	0.00	0.00	0.19
FASEI	0.21	-0.02	0.01	-0.01	0.22
MOSEI	0.18	-0.01	-0.01	-0.01	0.19
CORE1	0.14	-0.01	-0.05	0.32	0.08
SEI1		0.08	-0.01	0.05	0.60
EMPEXT67	0.11		-0.01	0.05	0.15
TRAIN67	-0.02	0.05		-0.04	0.00
CORE67	0.16	0.02	-0.04		0.11
SEI67	0.68	0.10	0.01	0.19	

[a] Variables are defined in Table 1.

Table 7 reports the results of the collinearity diagnostics which aims at detecting whether there is any problem of multicollinearity among the independent variables in the model. In the model predicting white women's occupational attainment at early career, there are three condition indices which are larger than 10, they are 12.142, 14.417 and 25.450 respectively. For the first condition index mentioned none of the coefficients has a variance proportion exceeding 0.5. For the remaining two indices, each has only one coefficient with varaince proportion exceeding 0.50, they are 0.8599 and 0.8866 respectively. In the nonwhite model, only two conition indices which are larger than 10 are identified, they are 11.325 and 16.531. Each has only one coefficient whose varaince proportion exceeds 0.5, they are 0.6604 and 0.6271 respectively. To conclude, no multicollinearity problems occur in the models.

Table 7. Collinearity Diagnostics for Model of Women's Occupational Attainment at Early Career by Race

WHITES

Number	Eigenvalue	Condition Index	Variance Proportions Portion Intercep	Portion ED*	Portion FAED*	Portion MOED*
1	8.401	1.000	0.0003	0.0003	0.0010	0.0008
2	0.796891	3.247	0.0000	0.0000	0.0001	0.0000
3	0.634464	3.639	0.0003	0.0005	0.0026	0.0017
4	0.370283	4.763	0.0000	0.0000	0.0001	0.0000
5	0.278029	5.497	0.0002	0.0000	0.0111	0.0025
6	0.163339	7.172	0.0032	0.0046	0.0045	0.0141
7	0.129648	8.050	0.0048	0.0008	0.0429	0.0490
8	0.115890	8.514	0.0000	0.0001	0.1680	0.0408
9	0.056983	12.142	0.1215	0.0655	0.4848	0.0312
10	0.040417	14.417	0.0898	0.0415	0.2849	0.8599
11	0.012971	25.450	0.7797	0.8866	0.0001	0.0001

Table 7 (Continued)

WHITES

Number	Portion FASEI*	Portion MOSEI*	Portion CORE1*	Portion SEI1*	Portion EMPENT67*	Portion TRAIN67*	Portion CORE67*
1	0.0022	0.0015	0.0036	0.0013	0.0028	0.0029	0.0035
2	0.0002	0.0000	0.0499	0.0000	0.0000	0.7135	0.1106
3	0.0120	0.0044	0.1075	0.0024	0.0041	0.2657	0.4043
4	0.0008	0.0002	0.7737	0.0004	0.0279	0.0022	0.4346
5	0.1114	0.0059	0.0148	0.0001	0.6922	0.0000	0.0346
6	0.7391	0.0069	0.0325	0.0975	0.1421	0.0015	0.0001
7	0.0798	0.0890	0.0046	0.5238	0.0001	0.0023	0.0013
8	0.0000	0.6970	0.0000	0.0011	0.0040	0.0012	0.0002
9	0.0295	0.1815	0.0032	0.0767	0.0922	0.0038	0.0016
10	0.0141	0.0024	0.0000	0.0501	0.0251	0.0046	0.0013
11	0.0109	0.0112	0.0102	0.2466	0.0094	0.0025	0.0079

Table 7 (Continued)

NONWHITES

Number	Eigenvalue	Condition index	Varaince Proportions Portion Intercep	Portion ED*	Portion FAED*	Portion MOED*
1	7.496	1.000	0.0007	0.0008	0.0022	0.0014
2	1.116	2.591	0.0004	0.0001	0.0006	0.0004
3	0.717310	3.233	0.0002	0.0004	0.0021	0.0005
4	0.510021	3.834	0.0000	0.0001	0.0001	0.0000
5	0.373800	4.478	0.0010	0.0020	0.0034	0.0007
6	0.263117	5.338	0.0093	0.0022	0.0145	0.0065
7	0.177864	6.492	0.0001	0.0001	0.2301	0.0079
8	0.161895	6.805	0.0005	0.0031	0.1170	0.0532
9	0.097183	8.783	0.0329	0.0528	0.6263	0.2212
10	0.058453	11.325	0.0824	0.3114	0.0017	0.6604
11	0.027433	16.531	0.8725	0.6271	0.0020	0.0479

Table 7 (Continued)

NONWHITES

Variance Proportions

Number	Portion FASEI*	Portion MOSEI*	Portion COREI*	Portion SEII*	Portion EMPEXT67*	Portion TRAIN67*	Portion CORE67*
1	0.0030	0.0033	0.0027	0.0034	0.0024	0.0037	0.0033
2	0.0010	0.0016	0.2923	0.0015	0.0023	0.0626	0.2219
3	0.0053	0.0064	0.0314	0.0049	0.0006	0.8882	0.0334
4	0.0010	0.0047	0.5245	0.0323	0.0001	0.0021	0.7017
5	0.0311	0.0790	0.1340	0.5350	0.0000	0.0022	0.0227
6	0.1158	0.3053	0.0030	0.0972	0.1920	0.0307	0.0010
7	0.1876	0.3917	0.0078	0.0061	0.2312	0.0014	0.0004
8	0.6223	0.1357	0.0024	0.0013	0.1811	0.0001	0.0001
9	0.0124	0.0712	0.0001	0.0279	0.1677	0.0074	0.0019
10	0.0130	0.0006	0.0001	0.0526	0.1084	0.0001	0.0003
11	0.0075	0.0004	0.0017	0.2378	0.1141	0.0015	0.0133

*Variables are defined in Table 1.

In Table 8, regression results of the model of women's occupational attainment in early career are shown. What is worth noting is that of the two variables which represent the job-relevant resources, only education continues to contribute to the movement vertically within the occupational hierarchy, and that a one year increase in educational level attained has almost the same effect on white and nonwhite women; the effect is 2.30 SEI points on white women and 2.17 SEI points on nonwhite women. These results are statistically significant at the .01 level. Vocational training other than regular school does not have a significant effect on the women's occupational attainment at their early career. This might be due to the fact that the variable is measured in a way too crude to encompass the real amount of training the women have undergone.

Table 8. Simple Model of Women's Occupational Attainment at Early Career: Regression of Socioeconomic Status of 1967 Occupation on Education, Socioeconomic Background, Status of First Job, Training, Employment Experience and Labor Market Segment by Race (Standard Errors in Parentheses)

Independent Variables[a]	WHITES Metric Coefficients	T	NONWHITES Metric Coefficients	T
ED	2.30 (0.21)	10.70*	2.17 (0.25)	8.61*
FAED	-0.02 (0.14)	-0.15	0.23 (0.23)	1.03
MOED	0.13 (0.14)	0.16	-0.10 (0.26)	-0.40
FASEI	0.05 (0.03)	1.95**	-0.16 (0.07)	-2.10**
MOSEI	0.09 (0.04)	2.31**	0.39 (0.08)	4.68*
COREI	-0.44 (0.79)	-0.56	2.18 (1.93)	1.13
SEII	0.43 (0.02)	17.74*	0.51 (0.04)	12.01*
TRAIN67	0.44 (0.88)	0.51	0.85 (1.39)	0.61
EMPEXT67	0.06 (0.01)	5.09*	0.01 (0.02)	0.65
CORE67	4.07 (0.80)	5.07*	1.32 (1.74)	0.76

Table 8 (continued)

	WHITES	NONWHITES
Constant	-13.47	-14.43
R^2	0.44	0.56
N	1560	497

* $p<0.01$
** $p<0.05$

[a] Variables are defined in Table 1.

The occupational attainment of women at their early career phase is still affected by their socioeconomic background. At this time, both parents' occupational attainment have significant effects on both races of women, but not all are in the positive direction. Specifically, for white women, 1 SEI point increase in father's occupational status leads to 0.05 SEI point increase in their occupational attainment in 1967. Their mothers' occupational attainment has a greater effect, 1 SEI point increase leads 0.09 SEI point increase in their status gain. Both effects are statistically significant at the .05 level. For nonwhite women, it is found that father's occupational attainment has a negative effect on their occupational attainmnet at their early career phase. 1 SEI point increase in father's occupational status results in 0.16 point of status loss. Conversely, a 1 SEI point increase in their mothers' occupational attainment causes 0.39 SEI point increase in these women's occupational attainment. These effects are statistically significant at the .05 and .01 level respectively.

The effect of career origin can be seen in this model. The two variables which represent the career origin are the labor market sectoral location of first job and the occupational attainment at first job. Women's occupational status at their first job does have a significant effect on the distance they move vertically in the occupational structure over the early period of their career life. SEI gains at first job have a greater effect on the early occupational attainment of nonwhites than on

whites. For the former group, one SEI point gained at their first job accounts for 0.51 SEI point gained in their 1967 job. For the latter group, 1 SEI point gained at first job brings about 0.43 SEI point gained in 1967.

Interestingly, whether a woman worked in the core industrial sector at her first job did not have a siginificant effect on her occupational status at this time.

Instead, for white women only, working in the core industrial sector in 1967 adds 4.07 SEI points to their occupational status. This relationship is significant at the .01 level. For nonwhites, working in the core industrial sector leads to 1.32 SEI points increase in the occupational status at 1967. However, this relationship is statistically insignificant.

The situation is similar when the effect of employment extent between leaving school and 1967 on occupational attainment is studied. For white women, a 1 percent increase in percent of years between leaving school and 1967 employed at least six months leads to 0.06 SEI point gained in 1967. For nonwhite women, the result is only 0.01 SEI point. In other words, a white women who had been employed at least half a year every year from the time she left school to the time she was interviewed in 1967 would have moved up from her first job 6 SEI points as a result of this employment alone. For a nonwhite woman, such full employment brings about only 1 SEI point

vertical movement in the occupational hierarchy. Nevertheless, the result is only statistically significant, at the .01 level, for white women.

To conclude, This model can explain significantly more about the variance in nonwhite women's occupational attainment at early career phase than in white women's. The total variance explained by this model is 0.57 for nonwhites and 0.44 for whites. What is worth noting is that two of the variables, employment extent and industrial sector location, which represent human capital and structural factor respectively, are not significant in affecting nonwhite women's status gain. One plausible explanation for the difference in effect of extent of employmnet experience by race is due to the types of occupations held by nonwhite women. At the beginning of this chapter, it is reported that nonwhite women, on the average, are at the service worker's level within the occupational hierarchy at their career origin. These are occupations which require relatively little skill. Experience per se in these sorts of jobs, according to the human capital theory, would not increase productivity and as a result, does not warrant any reward.

WOMEN'S OCCUPATIONAL ATTAINMENT AT MID-CAREER

To study women's occupational mobility at mid-career, all variables that are considered important in influencing their

movement along the occupational hierarchy are included. In addition to the variables in the model of occupational attainment at early career, training received between 1968 and 1972 and extent of employment between 1968 and 1976 are incorporated. Also, because information is available, instead of just measuring the industrial sectoral location in 1976, a summary measure of percent of years between 1967 and 1976 working in the core industrial sector is included.

As indicated in Table 9 where the zero-order correlations among variables in the model are shown, occupational status in 1976 is positively related to all independent variables for white women. For nonwhite women, almost the same conlusion can be drawn except that whether a nonwhite woman has received any vocational training other than regular school is negatively related to occupational status attainment in 1976. However, this negative relationship is trivial and insignificant.

Table 9. Zero-order Correlations between Variables in Model of Occupational Attainment at Mid-career: values for whites above the diagonal, for nonwhites, below

Variables[a]	ED	FAED	MOED	FASEI	MOSEI	COREI	SEI1
ED		0.29	0.30	0.28	0.19	0.02	0.59
FAED	0.25		0.54	0.37	0.17	0.03	0.23
MOED	0.39	0.34		0.24	0.21	0.05	0.19
FASEI	0.18	0.25	0.16		0.28	0.01	0.21
MOSEI	0.15	0.15	0.22	0.38		0.02	0.18
COREI	0.17	0.12	0.12	0.07	0.04		0.14
SEI1	0.59	0.20	0.24	0.16	0.10	0.23	
EMPEXT67	0.07	0.00	-0.02	0.00	-0.02	-0.03	0.11
TRAIN67	0.00	-0.02	0.03	-0.02	-0.02	-0.05	-0.02
SEI67	0.63	0.21	0.24	0.13	0.23	0.21	0.68
TRAIN68-72	0.00	-0.01	-0.07	-0.01	-0.06	-0.06	-0.03
EMPEXT68-76	0.24	0.11	0.09	0.05	0.08	0.03	0.19
CORE67-76	0.15	0.09	0.08	0.09	0.07	0.32	0.09
SEI76	0.60	0.21	0.19	0.17	0.17	0.20	0.58

Table 9 (Continued)

Variables[a]	EMPEXT 67	TRAIN 67	SEI 67	TRAIN 68-72	EMPEXT 68-76	CORE 67-76	SEI 76
ED	0.06	0.00	0.54	0.03	0.08	-0.02	0.47
FAED	-0.05	0.04	0.20	-0.04	-0.02	-0.02	0.19
MOED	-0.04	0.00	0.19	-0.03	0.00	-0.01	0.18
FASEI	-0.02	0.01	0.22	0.05	-0.01	-0.01	0.19
MOSEI	-0.01	-0.01	0.19	-0.06	-0.01	-0.02	0.16
CORE1	-0.01	-0.05	0.08	0.02	0.01	0.19	0.09
SEI1	0.08	-0.01	0.60	0.03	0.06	0.05	0.49
EMPEXT67		-0.01	0.15	0.00	0.39	0.16	0.18
TRAIN67	0.05		0.00	0.10	0.01	-0.04	0.02
SEI67	0.09	0.01		0.01	0.11	0.06	0.60
TRAIN68-72	0.02	0.15	-0.03		-0.02	0.00	0.01
EMPEXT68-76	0.32	-0.02	0.28	-0.04		0.17	0.21
CORE67-76	-0.03	-0.02	0.13	-0.04	0.14		0.11
SEI76	0.12	-0.03	0.76	0.00	0.28	0.13	

[a] Variables are defined in Table 1.

Table 10 shows the results of the collineraity diagnostics for model of women's occupational attainment at mid-career. In the model for whites, three condition indices between 10 and 20 are found, they are 12.155, 13.763 and 16.032; and one is over 20 which is 28.760. For the first condition index mentioned,two coefficient with variance proportions higher than 0.5 (0.6241 and 0.7157) appear. The corresponding variables are occupational attainment of first job and 1967 job. This is understandable and, as can be seen later, both variables are significant in explainining the variation in white women's status attainment at mid-career. For the remaining three indices, all have only one coefficient whose variance proportion exceeds 0.5, they are 0.5284, 0.8220 and 0.8820 respectively. In the nonwhite model, only two condition indices larger than 10 are found, they are 12.961 and 19.269. Both indices have only one coefficient whose variance proportion is higher than 0.5, they are 0.6529 and 0.6796 respectively. Hence, the conclusion that there is no multicollinearity problem observed in the model can be made.

Table 10. Collinearity Diagnostics for Model of Women's Occupational Attainment at Mid-career by Race

WHITES

Number	Eigenvalue	Condition Index	Variance Proportions Portion Intercep	Portion ED*	Portion FAED*
1	10.270	1.000	0.0002	0.0002	0.0007
2	0.854740	3.466	0.0000	0.0000	0.0001
3	0.718424	3.781	0.000	0.0000	0.0004
4	0.607599	4.111	0.0002	0.0004	0.0029
5	0.447638	4.790	0.0000	0.0000	0.0000
6	0.312996	5.728	0.0000	0.0001	0.0102
7	0.198828	7.187	0.0006	0.0008	0.0120
8	0.156368	8.104	0.0052	0.0016	0.0202
9	0.141455	8.521	0.0039	0.0004	0.0196
10	0.115697	9.422	0.0000	0.0001	0.1655
11	0.069508	12.155	0.0014	0.0029	0.0043
12	0.054221	13.763	0.1140	0.0623	0.5284
13	0.039957	16.032	0.1041	0.0491	0.2356
14	0.012416	28.760	0.7702	0.8820	0.0001

Table 10 (Continued)

WHITES

Number	Portion MOED*	Variance proportions Portion FASEI*	Portion MOSEI*	Portion COREI*
1	0.0005	0.0015	0.0010	0.0025
2	0.0001	0.0000	0.0004	0.0116
3	0.0001	0.0002	0.0004	0.0178
4	0.0015	0.0126	0.0041	0.0593
5	0.0000	0.0001	0.0000	0.7898
6	0.0028	0.0882	0.0076	0.0655
7	0.0049	0.1904	0.0110	0.0156
8	0.0312	0.4398	0.0154	0.0132
9	0.0257	0.2124	0.0648	0.0020
10	0.0378	0.0001	0.6932	0.0000
11	0.0111	0.0028	0.0023	0.0049
12	0.0622	0.0316	0.1797	0.0037
13	0.8220	0.0119	0.0062	0.0002
14	0.0001	0.0086	0.0138	0.0139

Table 10 (Continued)

	WHITES Variance Proportions			
Number	Portion SEI1*	Portion EMPEXT67*	Portion TRAIN67*	Portion SEI67*
1	0.0007	0.0016	0.0019	0.0009
2	0.0002	0.0013	0.3480	0.0003
3	0.0000	0.0000	0.4829	0.0000
4	0.0022	0.0006	0.1399	0.0026
5	0.0003	0.0384	0.0120	0.0001
6	0.0020	0.2674	0.0000	0.0006
7	0.1384	0.0032	0.0017	0.1852
8	0.0023	0.3656	0.0051	0.0140
9	0.0111	0.2647	0.0005	0.0281
10	0.0005	0.0117	0.0007	0.0003
11	0.6241	0.0018	0.0000	0.7157
12	0.0435	0.0227	0.0013	0.0010
13	0.0573	0.0122	0.0038	0.0008
14	0.1174	0.0089	0.0022	0.0505

Table 10 (Continued)

	WHITES Variance Proportions		
Number	Portion EMPEXT68-76*	Portion TRAIN67*	Portion CORE67-76*
1	0.0014	0.0017	0.0024
2	0.0010	0.4639	0.0358
3	0.0001	0.5036	0.0309
4	0.0006	0.0004	0.6091
5	0.0211	0.0036	0.1213
6	0.1390	0.0000	0.1895
7	0.0452	0.0001	0.0020
8	0.1805	0.0023	0.0000
9	0.5426	0.0009	0.0020
10	0.0046	0.0011	0.0000
11	0.0001	0.0026	0.0000
12	0.0480	0.0165	0.0004
13	0.0149	0.0028	0.0000
14	0.0009	0.0006	0.0067

Table 10 (Continued)

NONWHITES

Number	Eigenvalue	Condition Index	Variance Proportions: Portion Intercep	Portion ED*	Portion FAED*
1	9.280	1.000	0.0004	0.0005	0.0014
2	1.087	2.922	0.0002	0.0000	0.0001
3	0.806508	3.392	0.0002	0.0004	0.0013
4	0.653566	3.768	0.0000	0.0000	0.0002
5	0.597120	3.942	0.0007	0.0001	0.0012
6	0.465998	4.463	0.0018	0.0001	0.0071
7	0.306226	5.505	0.0025	0.0008	0.0001
8	0.202594	6.768	0.0011	0.0014	0.1316
9	0.170033	7.388	0.0017	0.0033	0.2001
10	0.138926	8.173	0.0052	0.0009	0.0373
11	0.114955	8.985	0.0009	0.0010	0.0004
12	0.096897	9.786	0.0292	0.0468	0.6139
13	0.055245	12.961	0.1185	0.2652	0.0017
14	0.024994	19.269	0.8375	0.6796	0.0035

Table 10 (Continued)

NONWHITES

Variance Proportions

Number	Portion MOED*	Portion FASEI*	Portion MOSEI*	Portion CORE1*
1	0.0009	0.0019	0.0020	0.0018
2	0.0001	0.0002	0.0002	0.2671
3	0.0008	0.0028	0.0067	0.1964
4	0.0000	0.0004	0.0000	0.0000
5	0.0005	0.0069	0.0078	0.1489
6	0.0031	0.0196	0.0194	0.3557
7	0.0003	0.1195	0.2575	0.0061
8	0.0147	0.1062	0.3555	0.0184
9	0.0554	0.4192	0.0099	0.0016
10	0.0197	0.2365	0.1696	0.0020
11	0.0043	0.0456	0.0728	0.0000
12	0.2200	0.0186	0.0843	0.0001
13	0.6529	0.0217	0.0046	0.0011
14	0.0273	0.0010	0.0097	0.0008

Table 10 (Continued)

	NONWHITES			
	Variance Proportions			
Number	Portion SEI1*	Portion EMPEXT67*	Portion TRAIN67*	Portion SEI67*
1	0.0017	0.0014	0.0023	0.0016
2	0.0041	0.0015	0.1098	0.0030
3	0.0046	0.0015	0.1504	0.0039
4	0.0016	0.0000	0.6626	0.0004
5	0.0759	0.0014	0.0431	0.0443
6	0.0860	0.0046	0.0032	0.0787
7	0.0015	0.1113	0.0091	0.0107
8	0.0919	0.0207	0.0000	0.0886
9	0.1118	0.1039	0.0020	0.0577
10	0.2145	0.1472	0.0043	0.1800
11	0.3071	0.3132	0.0046	0.3777
12	0.0440	0.1331	0.0067	0.0044
13	0.0028	0.0818	0.0000	0.0308
14	0.0525	0.0783	0.0018	0.1181

Table 10 (Continued)

	NONWHITES		
	Variance Proportions		
Number	Portion EMPEXT68-76*	Portion TRAIN68-72*	Portion CORE67-76*
1	0.0016	0.0020	0.0026
2	0.0002	0.1474	0.0973
3	0.0026	0.3490	0.1053
4	0.0000	0.4503	0.0111
5	0.0028	0.0042	0.4419
6	0.0000	0.0109	0.3055
7	0.1102	0.0078	0.0017
8	0.1139	0.0062	0.0046
9	0.0187	0.0001	0.0005
10	0.2937	0.0002	0.0197
11	0.4412	0.0036	0.0027
12	0.0004	0.0008	0.0035
13	0.0133	0.0154	0.0027
14	0.0013	0.0021	0.0010

*Variables are defined in Table 1.

The actual effects of the independent variables are shown in Table 11. Education continues to assert a significant influence on women's occupational attainment at this time of their work lives. One additional year of education enhances the white women's occupational attainment by 1.38 SEI points, and for the nonwhite women, 1.16 SEI points. Both effects are statistically significant at the .01 level. Training, again, does not have a significant effect for either race.

Socioeconomic background does not exercise any significant influence on women's occupational status at the mid-career stage. Their effects are probably mediated through variables such as education and attainment at entry into the labor force and at early career.

Table 11. Simple Model of Women's Occupational Attainment at Mid-career: Regression of Socioeconomic Status of 1976 Occupation on Education, Socioeconomic Background, Status of First Job, 1967 Job, Training, Employment Experience and Labor Market Segment by Race (Standard Errors in Parentheses)

Independent Variables[a]	WHITES		NONWHITES	
	Metric Coefficients	T	Metric Coefficients	T
ED	1.38 (0.24)	5.84*	1.16 (0.27)	4.30*
FAED	0.11 (0.15)	0.74	0.14 (0.22)	0.63
MOED	0.14 (0.17)	0.82	-0.33 (0.26)	-1.26
FASEI	0.02 (0.03)	0.74	0.11 (0.07)	1.50
MOSEI	0.04 (0.04)	1.00	-0.02 (0.08)	-0.26
CORE1	0.92 (0.81)	1.13	1.80 (1.86)	0.97
SEI1	0.14 (0.03)	4.86*	0.07 (0.05)	1.46
TRAIN67	0.87 (0.94)	0.93	-1.81 (1.39)	-1.30
EMPEXT67	0.03 (0.01)	2.29**	0.02 (0.02)	1.14
SEI67	0.42 (0.03)	15.70*	0.61 (0.05)	13.39*
EMPEXT68-76	0.08 (0.01)	5.69*	0.04 (0.02)	1.84
TRAIN68-72	0.00 (0.02)	-0.17	0.02 (0.02)	0.87
CORE67-76	0.03 (0.01)	2.69*	0.00 (0.02)	0.04

Table 11 (Continued)

	WHITES	NONWHITES
Constant	-9.60	-5.67
R^2	0.43	0.61
N	1560	497

*p<0.01
**p<0.05

[a] Variables are defined in Table 1.

The extent of employment at early career phase and in the period throughout their mid-career lives has a positive effect on white women. A one percent increase in percent of years worked at least six months between leaving school and 1967 and a one percent increase in percent of weeks worked between 1968 and 1976 leads to 0.03 and 0.08 SEI points increase respectively in the status gained in 1976. The former relationship is statistically significant at the .05 level and the latter, .01. Hence, the average white woman, i.e., one who had worked outside the home 50.73 percent of the years between leaving school and 1967 and had worked 59.73 percent of the weeks between 1968 and 1976, would have moved up within the occupational hierarchy 6.30 SEI points, as a result of these experiences, net of other factors. Like their employment experience in the early career period, employment experience in the mid-career does not significantly enhance nonwhite women's occupational attainment in 1976. Recall that at this phase of their work lives, nonwhite women, on the whole, are at the level of operative laborers. The skill required is not quite high. Therefore, experience in these occupations is again not rewarded.

Structural factor pertaining to career origin does not have any significant effect on women's occupational attainment at mid-career. Nevertheless, the attainment at career origin of white women continues to contribute to their occupational gain at later stage. A 1 SEI point increase in their SEI1 increased their SEI76 score by 0.14 points. This effect is statistically

significant at the .01 level. For nonwhite women, attainment at career origin has ceased to affect their occupational status at mid-career significantly.

The occupational attainment at early career has effects on both white and nonwhite women's attainment at mid-career. For nonwhite women, a 1 SEI point increase in 1967 leads to 0.61 SEI point increase in 1976, and for white women, 0.42. Both effects are statistically significant at the .01 level.

There is a difference between races in the effect of working in the core industrial sector between 1967 and 1976. The extent of working in the core sector has virtually no effect on nonwhite women with respect to their occupational attainment. The picture is quite different for white women. 1 percent increase in the percent of years between 1967 and 1976 working in the core industrial sector increases a white woman's occupational status by 0.03 SEI point. This effect is statistically significant at the .01 level. A white woman who had worked only in the core sector between 1967 and 1976 would have moved 3 SEI points up the occupational hierarchy, with other factors held constant.

In sum, this model can explain about 43% and 61% variance in white and nonwhite women's occupational attainment at mid-career respectively. It is worth noting that only two variables, namely educational attainment and occupational attainment in 1967 are significant in explaining nonwhite women's occupational

attainment in 1976.

Overall speaking, the models predict the occupational status gains of nonwhite women better than those of white women. And, the explained variance increases, in general, as additional variables are included.

Notes

1 Not all women reported their parents' educational and occupational attainment. Following Treiman and Terrell's example (1975), where no information for these variables was available, the mean of the respective race was assigned. This, of course, has the effect of reducing the standard deviations of the variables.

2 It is recalled that the mean value of these variables was assigned to cases where no information was available. This would make it difficult to find these variables statistically significant (Rosenfeld, 1978a).

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

What is sought after principally, in this study, is to test emperically two major questions that shed light on the role of labor market strucutre in the dynamics of occupational attainment. This is done by way of the available data on mature women from the 1967-1976 National Longitudinal Surveys. The two major questions addressed, to recapitulate, are as follows:

1. Are differences in the labor market sector location related to variations in occupational attainment, when other factors are held constant? Since the core industrial sector offers better opportunities for training and mobility, it is hypothesized that the more extensively a woman works in the core sector, the higher will she move up the occupational hierarchy.
2. Does the labor market sectoral location of women's first jobs affect their later occupational attainment? The hypothesis set for this question is that women who work in the core industrial sector at their first job will achieve better occupationally. The argument is that career origin carries much weight in determining the accumulation of job-relevant resources in the form of skill development, which then leads to advancement opportunities.

Also hypothesized is that socioeconomic background, job-relevant resources (i.e., education and vocational/occupational training) and extent of employment are factors contributing to the women's occupational attainment.

The way the data are collected enables the division of the career histories of the women in the sample into three points: career origin (first job), early career (1967 job) amd mid-career (1976 job). Three models are constructed to test the effects of the various independent variables on the occupational attainment of women at these three points of their work lives.

The results of the regression models by race are reported in the last chapter where acceptance or rejection of hypotheses has not been systematically laid out. Tables 12, 13 and 14 summarize the results with reference to the specific hypotheses set at the end of Chapter two:-

Table 12. Test of Hypotheses in Model of Women's Occupational Attainment at Career Origin

Hypothesis[a]	WHITES	NONWHITES
1. Father's educational attainment is positively related to women's occupational attainment	Accepted	Rejected
2. Father's occupational attainment is positively related to women's occupational attainment	Rejected	Rejected
3. Mother's educational attainment is positively related to women's occupational attainment	Rejected	Rejected
4. Mother's occupational attainment is positively related to women's occupational attainmmet	Accepted	Rejected
5. The higher the educational attainment, the higher the occupational attainment	Accepted	Accepted
7. At their career origin, women in the core sector achieve more occupationally than their counterparts in the periphery sector	Accepted	Accepted

[a] The numerical designation of hypotheses follow those listed in Chapter Two.

Table 13. Test of Hypotheses in Model of Women's Occupational Attainment at Early Career

Hypothesis[a]	WHITES	NONWHITES
1. Father's educational attainment is positively related to women's occupational attainment	Rejected	Rejected
2. Father's occupational attainment is positively related to women's occupational attainment	Accepted	Accepted
3. Mother's educational attainment is positively related to women's occupational attainment	Rejected	Rejected
4. Mother's occupational attainment is positively related to women's occupational attainment	Accepted	Accepted
5. The higher the educational attainment, the higher the occupational attainment	Accepted	Accepted
6. The more training other than formal education received, the higher the occupational attainment	Rejected	Rejected
8. Women who work in the core sector achieve more occupationally than those who work in the periphery sector	Accepted	Rejected

Table 13 (continued)

Hypothesis[a]	WHITES	NONWHITES
10. Women who enter the core industrial sector at their career origins will have higher occupational attainment than those who enter the periphery sector	Rejected	Rejected
11. The higher the status of occupation at career origin, the higher the occupational status at early career	Accepted	Accepted
12. The more extensively women participate in the labor force, the higher is their occupational attainment	Accepted	Rejected
13. The higher the status achieved in first job, the higher the occupational attainment in 1967	Accepted	Accepted

[a] The numerical designation of hypotheses follow those listed in Chapter Two.

Table 14. Test of Hypotheses in Model of Women's Occupational Attainment at Mid-career

Hypothesis[a]	WHITES	NONWHITES
1. Father's educational attainment is positively related to women's occupational attainment	Rejected	Rejected
2. Father's occupational attainment is positively related to women's occupational attainment	Rejected	Rejected
3. Mother's educational attainment is positively related to women's occupational attainment	Rejected	Rejected
4. Mother's occupational attainment is positively related to women's occupational attainment	Rejected	Rejected
5. The higher the educational attainment, the higher the occupational attainment	Accepted	Accepted
6. The more training other than formal education received, the higher the occupational attainment	Rejected	Rejected
9. Women who work more extensively in the core industrial sector have higher occupational attainment than those who work more extensively in the periphery sector	Accepted	Rejected

Table 14 (Continued)

Hypothesis[a]	WHITES	NONWHITES
10. Women who enter the core industrial sector at their career origins will have higher occupational attainment than those who enter the periphery sector	Rejected	Rejected
11. The higher the status of occupation at career origin, the higher the occupational attainment at mid-career	Accepted	Rejected
12. The more extensively women participate in the labor force, the higher is their occupational attainment	Accepted	Rejected
13. The higher the status achieved occupationally in 1967, the higher the occupational attainment in 1976	Accepted	Accepted

[a] The numerical designation of hypotheses follow those listed in Chapter Two.

Looking at the results of the three models, the answer to the first question -- whether differences in labor market sectoral location are related to variations in occupational attainment is a yes for the white women. Throughout the different stages in their work lives, white women who work more extensively in the core industrial sector do achieve more. This betterment is significant and nontrivial. For nonwhite women, the answer is a qualified yes. The structural factor does affect their occupational status significantly at their first jobs. But the effect discontinues as they participate more extensively in the labor force. The assignment of industry categories into core and periphery sectors by the aggregated approach lacks qualitative knowledge about firms' employment and promotion practices. Such knowledge will be of special value in adding to understanding nonwhite women's movement within the structure of occupational hierarchy. Therefore, the meaning of the findings about nonwhite women by the aggregated approach awaits additional knowledge form disaggregated analysis. (Althauser and Kalleberg, 1981).

The NLS data lend support to the second key hypothesis, which reinforces the first major hypothesis, that the labor market sectoral location of women's first jobs affects their later occupational attainment. The labor market sectoral location of first job does significantly affect women's occupational attainment at career origin. The latter in turn affect their occupational status at early career and mid-career stages. This

finding indicates that labor market sectoral location has some direct effect on the occupational status at career origin, as well as indirect effects mediated through the variable of occupational prestige at entry. It appears that, to a certain extent, this structural factor continues to affect women's occupational attainment throughout their work lives.

The women in the sample also receive status gains over their work lives from their other resources. Firstly, education adds to the prediction of the extent of their status gains over the period from their career origin to mid-career. The effect of education is greatest at their career origin, and the effect lessens as the women participate more extensively in the labor force. This is understandable as the effect of education on later career stages is mediated through the status attainment at an earlier stage. Secondly, white women are rewarded with status gains for more extensive labor market activity. Nonwhite women with more extensive employment do not have a significant edge over those who do not have as extensive employment experience as they do. The explanation according to the human capital theory is that their low status jobs require little skill. So, extensive employment in the job does not increase their human capital in the form of skill development and productivity and hence does not act as a resource from which nonwhite women can capitalize on. Thirdly, socioeconomic background affect women's occupational status differently at different stages of their work lives. The general conclusions are that whites capitalize

more on their parents' educational and occupational attainment than nonwhites do and that its effects are mediated through educational attainment of the women.

Two general concluding remarks must be added. One is that models including variables representing the labor market strucutre show that structural factors do have significant effects on the labor outcomes, net of human capital factors. However, this conclusion remains tentative since this finding from the aggregated approach awaits qualitative knowledge from disaggregated data to add to the explanation for the race difference. The other is that nonwhite women, in general though experience some upward mobility over their occupational lives, remain at the levels lower than those occupied by white women. Furthermore, their resources do not render comparably positive returns as they do to white women. This is the major reason for their relative disadvantageous position in the occupational hierarchy.

-- END --

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APPENDIX I

DUNCAN SOCIOECONOMIC INDEX

FOR 1960 CENSUS DETAILED OCCUPATION CODES

Duncan SEI	1960 Census Occupation Code	Description
		Professional, Technical, and Kindred Workers
78	000	Accountants and Auditors
60	010	Acotrs and Actresses
79	012	Airplane Pilots and Navigators
90	013	Architects
67	014	Artists and Art Teachers
52	015	Athletes
76	020	Authors
79	021	Chemists
75	022	Chiropractors
52	023	Clergymen
84	030	College Presidents and Deans
84	031	Professors and Instructors, Agricultural Sciences
84	032	Professors and Instructors, Biological Sciences
84	034	Professors and Instructors, Chemistry
84	035	Professors and Instructors, Economics
84	040	Professors and Instructors, Engineering
84	041	Professors and Instructors, Geology and Geophysics
84	042	Professors and Instructors, Mathematics
84	043	Professors and Instructors, Medical Sciences
84	045	Professors and Instructors, Physics
84	050	Professors and Instructors, Psychology
84	051	Professors and Instructors, Statistics
84	052	Professors and Instructors, Natural Sciences (n.e.c.)
84	053	Professors and Instructors, Social Sciences (n.e.c.)
84	054	Professors and Instructors, Nonscientific Subjiects
84	060	Professors and Instructors, Subject Not Specified
45	070	Dancers and Dancing Teachers
96	071	Dentists

73	072	Designers
39	073	Dieticians and Nutritionists
67	074	Draftsmen
82	075	Editors and Reporters
87	080	Engineers, Aeronautical
90	081	Engineers, Chemical
84	082	Engineers, Civil
84	083	Engineers, Electrical
86	084	Engineers, Industrial
82	085	Engineers, Mechanical
82	090	Engineers, Metallurgical, and Metallurgists
85	091	Engineers, Mining
87	092	Engineers, Sales
87	093	Engineers (n.e.c.)
31	101	Entertainers (n.e.c.)
83	102	Farm and Home Management Advisers
48	103	Foresters and Conservationists
59	104	Funeral Directors and Embalmers
93	105	Lawyers and Judges
60	111	Librarians
52	120	Musicians and Music Teachers
80	130	Agricultural Scientists
80	131	Biological Scientists
80	134	Geologists and Geophysicists
80	135	Mathematicians
80	140	Physicists
80	145	Miscellaneous Natural Scientists
46	150	Nurses, Professional
51	151	Nurses, Student Professional
79	152	Optometrists
96	153	Osteopaths
84	154	Personnel and Labor-relations Workers
82	160	Pharmacists
50	161	Photographers
92	162	Physicians and Surgeons
82	163	Public Relations and Publicity Writers
69	164	Radio Operators
67	165	Recreation Group Workers
56	170	Religious Workers
64	171	Social and Welfare Workers, Except Group Social Scientists
81	172	Economists
81	173	Psychologists
81	174	Statisticians ans Actuaries
81	175	Miscellaneous Social Scientists
64	180	Sports Instructors and Officials
48	181	Surveyors
72	182	Teachers, Elementary Schools
72	183	Teachers, Secondary Schools
72	184	Teachers (n.e.c.)
48	185	Technicians, Medical and Dental
62	190	Technicians, Electrical and Electronic
62	191	Technicians, Oth. Engineering & Physical

		Sciences
62	192	Technicians (n.e.c.)
58	193	Therapists and Healers (n.e.c.)
78	194	Veterinarians
65	195	Professional, Technical, and Kindred Workers (n.e.c.)
		Managers, Officials and Proprietors, Except Farm
72	250	Buyers and Department Heads, Store
33	251	Buyers and Shippers, Farm Products
58	252	Conductors, Railroads
74	253	Credit Men
50	254	Floor Men and Floor Managers, Store
32	262	Managers and Superintendents, Building
54	265	Officers, Pilots, Pursers, and Engineers, Ship
58	275	Officials, Lodge, Society, Union, etc.
60	280	Postmasters
77	285	Purchasing Agnets and Buyers (n.e.c.)
		Clerical and Kindred Workers
68	301	Agents (n.e.c.)
44	302	Attendants and Assistants, Library
38	303	Attendants, Physician's and Dentist's Office
25	304	Baggagemen, Transportation
52	305	Bank Tellers
51	310	Bookkeepers
44	312	Cashiers
39	313	Collectors, Bill and Account
40	314	Dispatchers and Starters, Vehicle
67	315	Express Messengers and Railway Mail Clerks
44	320	File Clerks
62	321	Insurance Adjusters, Examiners, and Investigators
53	323	Mail-carriers
28	324	Messengers and Office Boys
45	325	Office Machine Operators
44	333	Payroll and Timekeeping Clerks
44	340	Postal Clerks
44	341	Receptionists
61	342	Secretaries
22	343	Shipping and Receiving Clerks
61	345	Stenographers
44	350	Stock Clerks and Storekeepers
22	351	Telegraph Messengers

47	352	Telegraph Operators
45	353	Telephone Operators
60	354	Ticket, Station, and Express Agents
61	360	Typists
44	370	Clerical and Kindred Workers (n.e.c.)

Sales Workers

66	380	Advertising Agents and Salesmen
40	381	Auctioneers
35	382	Demonstrators
08	383	Hucksters and Peddlers
66	385	Insurance Agents, Brokers, and Underwriters
27	390	Newsboys
62	393	Real Estate Agents and Brokers
73	395	Stock and Bond Salesmen

Craftsmen, Foremen, and Kindred Workers

22	401	Bakers
16	402	Blacksmiths
33	403	Boilermakers
39	404	Bookbinders
27	405	Brickmasons, Stonemasons, and Tile Setters
23	410	Cabinetmakers
19	411	Carpenters
19	413	Cement and Concrete Finishers
52	414	Compositers and Typesetters
21	415	Cranemen, Derrickmen, Hoistmen
40	420	Decorators and Window Dressers
44	421	Electricians
55	423	Electrotypers and Stereotypers
47	424	Engravers, Except Photoengravers
24	425	Excavating, Grading, and Road-machinery Operators
23	431	Forgemen and Hammermen
39	432	Furriers
26	434	Glaziers
22	435	Heat Treaters, Annealers, and Temperers
23	444	Inspectors, Scalers, and Graders, Log and Lumber
36	451	Jewelers, Watchmakers, Goldsmiths, and Silversmiths
28	452	Job Setters, Metal
49	453	Linemen and Servicemen, Telegraph, Telephone, and Power
58	454	Locomotive Engineers

45	460	Locomotive Firemen
10	461	Loom Fixers
33	465	Machinists
27	470	Machanics and Repairmen, Air Conditioners, Heating, and Refigerators
48	471	Machanics and Repairmen, Airplane
19	472	Machanics and Repairmen, Automobile
36	473	Machanics and Repairmen, Office Machine
36	474	Machanics and Repairmen, Radio and Television
23	475	Machanics and Repairmen, Railroad and Car Shop
27	480	Machanics and Repairmen, (n.e.c.)
19	490	Millers, Grain, Flour, Feed, etc.
31	491	Millwrights
12	492	Molders, Metal
43	493	Motion Picture Projectionists
39	494	Opticians, asn Lens Grinders and Polishers
16	495	Painters, Construction and Maintenance
10	501	Paperhangers
44	502	Pattern and Model Makers, Except Paper
64	503	Phtoengravers and Lithographers
38	504	Piano and Organ Tuners and Repairmen
25	505	Plasterers
34	510	Plumbers and Pipe Fitters
49	512	Pressmen and Plate Printers , Printing
22	513	Rollers and Roll Hands, Metal
15	514	Roofers and Slaters
12	515	Shoemakers and Repairers, Except Factory
47	520	Stationary Engineers
25	521	Stone Cutters and Stone Cravers
34	523	Structural Metal Workers
23	524	Tailors and Tailoresses
33	525	Tinsmiths, Coppersmiths, and Sheet Metal Workers
50	530	Toolmakers, and Die Makers and Setters
22	535	Upholsterers
32	545	Craftsmen and Kindred Workers (n.e.c.)

Operatives and Kindred Workers (Includes Mine Laborers)

25	601	Apprentice and Machanics
32	602	Apprentice Bricklayers and Masons
31	603	Apprentice Carpenters
37	604	Apprentice Electricians
41	605	Apprentice Machinists and Toolmakers
34	610	Apprentice Machanics, Except Auto
33	612	Apprentice Plumbers and Pipe Fitters
29	613	Apprentices, Building Trades (n.e.c.)

33	614	Apprentices, Metalworking Trades (n.e.c.)
40	615	Apprentices, Printing Trades
31	620	Apprentices, Other Specified Trades
39	621	Apprentices, Trade Not Specified
32	630	Asbestos and Insulation Workers
17	631	Assemblers
19	632	Attendants, Auto Service and Parking
11	634	Blasters and Powermen
24	635	Boatmen, Canalmen, and Lock Keepers
42	640	Brakemen, Railroad
24	641	Bus Drivers
25	642	Chairmen, Rodmen and Axmen, Surveying
17	643	Checkers, Examiners, & Inspectors, Mfg.
30	645	Conductors, Bus and Streer Railway
32	650	Deliverymen and Routemen
23	651	Dressmakers and Seamstresses, except Factory
12	652	Dyers
22	653	Filers, Grinders, and Polishers, Metal
10	654	Fruit, Nut & Vegetable Graders & Packers, Except Factory
18	670	Furnacemen, Smeitermen, and Pourers
17	671	Graders and Sorters, Manufacturing
29	672	Heaters, Metal
21	673	Knitters, Loopers, and Toppers, Textile
15	674	Laundry and Dry Cleaning Operatives
29	675	Meat Cutters, Except Slaughter and Packing House
46	680	Milliners
03	690	Motormen, Mine, Factory, Logging Camp, etc.
34	691	Motormen, Street, Subway, and Elevated Railway
15	692	Oilers and Greasers, Except Auto
18	693	Packers and Wrappers (n.e.c.)
18	694	Painters, Except Construction and Maintenance
42	695	Photographic Process Workers
50	701	Power Station Operators
16	703	Sailors and Deck Hands
15	704	Sawyers
17	705	Sewers and Stitchers, Manufacturing
05	710	Spinners, Textile
17	712	Stationary Firemen
44	713	Switchmen, Railroad
10	714	Taxicab Drivers and Chauffeurs
15	715	Truck and Tractor Drivers
06	720	Weavers, Textile
24	721	Welders and Flame-cutters

Private Household Workers

07	801	Baby Sitters, Private Household
19	802	Housekeepers, Private Household
12	803	Launderesses, Private Household
07	804	Private Household Workers (n.e.c.)

Service Workers, Except Private Household

13	810	Attendants, Hospitals and Other Institutions
26	812	Attendants, Professional and Personal Service (n.e.c.)
19	813	Attendants, Recreation and Amusement
17	814	Barbers
19	815	Bartenders
08	820	Bootblacks
30	821	Boarding and Lodging-house Keepers
11	823	Chambermaids and Maids, Except Private Household
10	824	Charwomen and Cleaners
15	825	Cooks, Except Private Household
17	830	Counter and Fountain Workers
10	831	Elevator Operators
31	832	Housekeepers and Stewards, Except Private Household
09	834	Janitors and Sextons
11	835	Kitchen Workers (n.e.c.), Except Private Household
37	840	Midwives
04	841	Porters
22	842	Practical Nurses
17	843	Hairdressers and Cosmetologists
37	850	Firemen, Fire Protection
18	851	Guards, Watchmen, and Doorkeepers
21	852	Marshals and Constables
34	854	Sheriffs and Bailiffs
25	874	Ushers, Recreation and Amusement
16	875	Waiters and Waitresses
11	890	Service Workers, Except Private Household (n.e.c.)

		Farmers and Farm Managers
14	200	Farmers (Owners and Tenants)
36	222	Farm Managers
		Farm Laborers and Foremen
20	901	Farm Foremen
06	902	Farm Laborers, Wage Workers
17	903	Farm Laborers, Unpaid Family Workers
22	905	Farm Service Laborers, Self-employed
		Laborers, except Farm and Mine
07	960	Carpenters' Helpers, Except Logging and Mining
10	962	Fishermen and Oystermen
08	963	Garage laborers, and Car Washers and Greasers
11	964	Gardeners, Except Farm, and Groundskeepers
11	965	Longshoremen and Stevedores
04	970	Lumbermen, Raftsmen, and Woodchoppers
08	971	Teamsters
09	972	Truck Drivers' Helpers
08	973	Warehousemen (n.e.c.)
		Members of the Armed Forces
18	555	Members of the Armed Forces

Note: (n.e.c.) = Not Elsewhere Classified

APPENDIX II

CORE AND PERIPHERY SECTORS OF INDUSTRIES

DEVELOPED BY TOLBERT ET AL. (1980)

Industry	1970 Census Code	Sector
Agriculture, forestry, fisheries:		
Agricultural production	017	Periphery
Agricultural services	018-28	Periphery
Mining:		
Metal mining	047	Core
Coal mining	048	Core
Crude petroleum and natural gas	049	Core
Nonmetallic mining and quarrying	057	Core
Construction:		
General Building Contractors	067	Core
General contractors, except building	068	Core
Special trade contractors	069	Core
Not specified construction	077	Core
Manufacturing -- durable goods:		
Lumber and wood products	107-9	Periphery
Furniture and fixtures	118	Periphery
Stone, clay, and glass products	119-38	Core
Primary Metal	139-49	Core
Fabricated metal products	157-69	Core
Machinery, except electrical	177-98	Core
Electrical machinery, equipment	199-209	Core
Motor vehicles and equipment	219	Core
Other transportation equipment	227-38	Core
Professional, photographic, watches	239-57	Core
Ordnance	258	Core
Miscellaneous manufacturing	259, 398	Periphery
Manufacturing -- nondurable goods:		
Food and kindred products	268-98	Core
Tobacco manufacturers	299	Core
Textile -- knitting mills	307	Periphery
Textile -- dyeing and finishing	308	Core
Textile -- floor covering	309	Periphery
Textile -- yarn, thread, fabric mills	317	Core
Textile -- miscellaneous products	318	Periphery
Apparel and other related products	319-27	Periphery
Paper and allied products	328-37	Core
Printing, publishing	338-39	Core
Chemicals and allied products	347-69	Core
Petroleum and coal products	377-78	Core

Rubber products	379	Core
Miscellaneous plastic products	387	Periphery
Tanned, curried, and finished leather	388	Periphery
Footwear, except rubber	389	Core
Leather products, except footwear	397	Periphery
Transportation, communications, and other public utilities:		
Railroads and railway express	407	Core
Street railways and bus lines	408	Periphery
Taxicab service	409	Periphery
Trucking service	417	Core
Warehousing storage	418	Core
Water transportation	419	Core
Air transportation	427	Core
Pipelines, except natural gas	428	Core
Services incidental to transportation	429	Periphery
Communications	447-49	Core
Electric, gas, and steam power	467-49	Core
Water, sanitary, and other utilities	477-79	Periphery
Wholesale trade:		
Motor vehicles and equipment	507	Periphery
Drugs, chemicals, allied products	508	Core
Dry goods and apparel	509	Periphery
Food and related products	527	Core
Farm products -- raw material	528	Periphery
Electrical goods	529	Core
Hardware, plumbing, heating supplies	537	Periphery
Not specified electrical, hardware	538	Periphery
Machinery, equipment and supplies	539	Core
Metals and minerals, not elsewhere classified	557	Core
Petroleum products	558	Periphery
Scrap and waste materials	559	Periphery
Alcoholic beverages	567	Core
Paper and its products	568	Periphery
Lumber and construction materials	569	Periphery
Wholesalers, not specified, not elsewhere classified	587-88	Periphery
Retail trade:		
Lumber, building materials, hardware	607-08	Periphery
Department, general merchandise stores	609-27	Periphery
Food stores	628-38	Periphery
Motor vehicles, gasoline, accessories	639-49	Periphery
Apparel and shoe stores	657-58	Periphery
Furniture, household appliances	667-68	Periphery
Eating and drinking places	669	Periphery
Other retail trade	677-98	Periphery

Finance, insurance, and real estate:		
Banking	707	Core
Credit agencies	708	Core
Security brokerage and investment	709	Core
Insurance	717	Core
Real estate	718	Periphery
Business and repair services:		
Advertising	727	Periphery
Automobile repair	757	Periphery
Other business services	728-49, 758-59	Periphery
Personal services:		
Hotels and motels	777	Periphery
Other personal services	769,778-98	Periphery
Entertainment and recreation services	807-9	Periphery
Professional and related services:		
Offices of physicians, dentisits, practitioners, and health services	828-37,847-48	Core
Hospitals, convalescent institutions	838-39	Periphery
Legal services	849	Core
Educational Services	857-68	Periphery
Museums and other nonprofit firms	869-87	Periphery
Engineering and architectural firms	888	Core
Accounting and auditing services	889	Core
Miscellaneous professional services	897	Core
Public administration	907-37	Core

APPENDIX III

INDUSTRIES, 1960 DETAILED CENSUS CODES AND SECTORAL ASSIGNMENT

Industry	1960 Census Code	Sector
Agriculture, forestry, fisheries:		
Agriculture	016	Periphery
Forestry	017	Periphery
Fisheries	018	Periphery
Mining:		
Metal mining	126	Core
Coal mining	136	Core
Crude petroleum and natural gas	146	Core
Nonmetallic mining and quarrying	156	Core
Construction	196	Core
Manufacturing -- durable goods:		
Lumber and wood products	246-48	Periphery
Furniture and fixtures	209	Periphery
Stone, clay, and glass products	216-36	Core
Primary Metal	237-39	Core
Fabricated metal products	246-49	Core
Machinery, except electrical	256-58	Core
Electrical machinery, equipment	259	Core
Motor vehicles and equipment	267	Core
Other transportation equipment	268-76	Core
Professional, photographic, watches	286-89	Core
Miscellaneous manufacturing	296	Periphery
Manufacturing -- nondurable goods:		
Food and kindred products	306-26	Core
Tobacco manufacturers	329	Core
Textile -- knitting mills	346	Periphery
Textile -- dyeing and finishing	347	Core
Textile -- floor covering	348	Periphery
Textile -- yarn, thread, fabric mills	349	Core
Textile -- miscellaneous products	356	Periphery
Apparel and other related products	359	Periphery
Paper and allied products	386-89	Core
Printing, publishing	396-98	Core
Chemicals and allied products	406-09	Core
Petroleum and coal products	416-19	Core
Rubber products	426	Core
Miscellaneous plastic products	429	Periphery

Tanned, curried, and finished leather	436	Periphery
Footwear, except rubber	439	Core
Leather products, except footwear	438	Periphery
Transportation, communications, and other public utilities:		
Railroads and railway express	506	Core
Street railways and bus lines	507	Periphery
Taxicab service	508	Periphery
Trucking service	509	Core
Warehousing storage	516	Core
Water transportation	517	Core
Air transportation	518	Core
Pipelines, except natural gas	519	Core
Services incidental to transportation	526	Periphery
Communications	536-39	Core
Electric, gas, and steam power	567-69	Core
Water, sanitary, and other utilities	576-79	Periphery
Wholesale trade:		
Motor vehicles and equipment	606	Periphery
Drugs, chemicals, allied products	607	Core
Dry goods and apparel	608	Periphery
Food and related products	609	Core
Farm products -- raw material	616	Periphery
Electrical goods, hardware, plumbing, heating supplies	617	Core
Machinery, equipment and supplies	618	Core
Petroleum products	619	Periphery
Wholesalers, not specified, not elsewhere classified	626-29	Periphery
Retail trade:		
Lumber, building materials, hardware	676-08	Periphery
Department, general merchandise stores	638-39	Periphery
Food stores	636	Periphery
Motor vehicles, gasoline, accessories	656-57	Periphery
Apparel and shoe stores	646-47	Periphery
Furniture, household appliances	648	Periphery
Eating and drinking places	659	Periphery
Other retail trade	676-96	Periphery
Finance, insurance, and real estate:		
Banking and credit agencies	706	Core
Security brokerage and investment	716	Core
Insurance	726	Core
Real estate	736	Periphery

Business and repair services:		
Advertising	806	Periphery
Automobile repair	808	Periphery
Other business services	807, 809	Periphery
Personal services:		
Hotels and motels	826	Periphery
Other personal services	816,836-39	Periphery
Entertainment and recreation services	846-49	Periphery
Professional and related services:		
Offices of physicians, dentisits, practitioners, and health services	867	Core
Hospitals, convalescent institutions	868	Periphery
Legal services	869	Core
Educational Services	876	Periphery
Museums and other nonprofit firms	888	Periphery
Engineering and architectural firms	896	Core
Accounting and auditing services	897	Core
Miscellaneous professional services	898	Core
Public administration	906-36	Core